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AUTHORITY, SCOPE AND PURPOSE OF STUDY

Due to the seriousness of urban flooding in recent years, a re-evaluation of the related priorities of flood reduction planning and construction programs has been undertaken by the State of Illinois. Assistance in this endeavor has been requested by the State through the Corps of Engineers, Chicago District, under the authority of Section 22 of Public Law 93-251, to gather data on the severity and frequency of flooding for municipalities in Illinois. Of particular interest to the State is the inventory of selected communities in order to obtain current data on the nature of urban flood problems, with special emphasis on average annual flood damages to residential structures. The data provided by the Corps of Engineers is to be utilized by the State in the establishment of priorities for ranking future feasibility studies and construction programs. Revision of these priority listings will be periodically made by the State as studies are completed and new information becomes available. Documentation and assessment of overbank flood problems, concurrently with identification of other flooding problems associated with urban drainage such as sewers, ditches, surface depressions, street ponding, and other similar concerns, is the major objective of this inventory.

DESCRIPTION OF STUDY AREA

Geographic Location. The study area in this report is bounded by the corporate limits of the city of Champaign. Champaign, Illinois, is located in Champaign County, approximately 40 miles southeast of Bloomington, Illinois. Neighboring communities include Urbana and St. Joseph to the east, Tolono and Philo to the south, and Rantoul to the north. A general vicinity map is shown as Figure 1.

Drainage System. The study area is drained by three streams: Boneyard Creek, Copper Slough and Phinney Branch, the latter being a tributary of Copper Slough along with John Street Copper Slough Tributary. Boneyard Creek has a small tributary named Third Street Boneyard Creek Tributary. Boneyard Creek is divided into Boneyard and Upper Boneyard Creek at Neil Street. The drainage areas of the major streams are shown on Figure 2. Champaign has a sanitary sewer system and storm sewers covering most of the city. There are a number of unnamed drainage ditches within the corporate limits. Flood control measures are discussed in the paragraph entitled, "Previous Drainage or Flood Control Studies and Projects."

Boneyard Creek originates in northern Champaign, flows east for a short distance, and then south through town and back east; then north again until it enters the Saline Branch northeast of the city. The length of Boneyard Creek in the study area is 2.08 miles with an average slope of 11.4 feet per mile. The approximate bankfull flows are 210 cfs. Upper Boneyard Creek rises in the north part of town and flows east for a short distance until it becomes Boneyard Creek at Neil Street. The length of Upper Boneyard Creek in the study area is 0.7 mile with an average slope of 15.7 feet per mile. Third Street Boneyard Creek Tributary rises just west of

First Street and flows east to the confluence with Boneyard Creek. The length of this tributary in the study area is 700 feet, with a slope of about 6.9 feet per mile. The drainage area is 4.1 square miles at the USGS gage near the corporate limits to the east for the entire Boneyard Creek Basin.

Copper Slough rises north of Champaign and flows south through the western portion of the city and then in a westerly direction for a short distance where it leaves the corporate limits. The length of Copper Slough in the study area is 3.27 miles with an average slope of 11.8 feet per mile. Bankfull flows are about 930 cfs. John Street Copper Slough Tributary rises about 650 feet north of the Illinois Central Railroad line west of the city, and flows south to its confluence with Copper Slough. The length of this tributary in the study area is approximately 1,000 feet with a slope of 34 feet per mile. The drainage area of Copper Slough and its tributary is 7.4 square miles at William Street which is at the western corporate limits.

Phinney Branch rises south of Champaign, flowing north and then west through the southern tip of the city, in and out of the corporate limits, until it empties into Copper Slough just west of Interstate 57. The length of Phinney Branch in the study area is 2.26 miles with an average slope of 7.9 feet per mile. The drainage area is 5.2 square miles at Duncan Road, which is just inside the city limits to the west. The approximate bankfull flows are 760 cfs.

The variations in thalweg elevations for the various streams in the study area are tabulated as follows:

Stream	Elevation (ft. NGVD)	(Mile)	to	Elevation (ft. NGVD)	(Mile)
Boneyard Creek	733.6	3.91		709.8	1.83
Upper Boneyard Creek	741.5	0.70		730.5	0.00
Third St. Boneyard Creek Tributary	715.8	0.13		714.9	0.00
Copper Slough	743.6	3.27		704.9	0.00
John St. Copper Slough Tributary	720.5	0.20		713.7	0.00
Phinney Branch	719.1	2.26		701.3	0.00

Transportation System. Major transportation routes through the city include Illinois highways 10, 130 and 150, U. S. Highways 45 and 150, numerous medium-duty and light-duty roads, and the Illinois Central, Penn Central and Norfolk and Western Railroads. There are three Interstate highways available to the city of Champaign: I-57, which is located just west of the corporate limits and runs north and south; I-72 starts at the western edge of the city and goes west; and I-74, an east-west highway, crosses through the northern part of the city. The University of Illinois Willard Airport, located about 2.5 miles south of Champaign, provides service to the city. The city is served by the Champaign-Urbana Mass Transit District and AMTRAK has a station in the city.

Population. In 1900 the population of Champaign was 9,098. By 1980 the population had increased to 57,142, with the most rapid growth in the 1940-1950 decade. The past, present, and projected future population of Champaign is shown in Table 1. The projections are based on OBERS Series E.

TABLE 1

PAST*, PRESENT* AND PROJECTED**

POPULATION OF CHAMPAIGN

Year	Population	Change from Preceding Year	
		Number	Percent
1900	9,098	-	-
1910	12,421	3,323	36.5
1920	15,873	3,452	27.8
1930	20,348	4,475	28.2
1940	23,302	2,954	14.5
1950	39,563	16,261	69.8
1960	49,583	10,020	25.3
1970	56,532	6,949	14.0
1980	57,142	610	1.0
1990	58,300**	1,158**	2.0**

* U. S. Census

** Projected by the Corps of Engineers, Louisville District

Industry and Commercial Establishments. Champaign is primarily a residential community surrounded by productive farm land. Local industries

are varied and expanding. The major growth industries include manufacturing, nondurable food and kindred products, finance, insurance, and real estate, wholesale and retail trade, government, agriculture and educational services.

Champaign has a public school system along with parochial schools of different denominations. The University of Illinois is located in Champaign-Urbana with an enrollment in excess of 33,000, and Parkland College is in Champaign with approximately 6,500 students. There are churches of many denominations, six hospitals, about 17 motels and hotels, 12 banks, and seven savings and loan associations. The city communication system is made up of three newspapers, five radio stations, three commercial television stations, and cable television. Twelve parks in the city occupy an area of about 400 acres. There are two public libraries.

Utilities such as gas, electricity, water and telephone services are provided by the Illinois Power Company, Central Illinois Electric Company, Northern Illinois Water Corporation and Illinois Bell Telephone Company, respectively.

Topography, Climate, and Soils. The general topography of Champaign varies from rolling to flat. Most of the city area lies in the elevation range of 710 feet to 790 feet NGVD.

Champaign lies in a region of humid continental climate, characterized by warm to hot summers and cool to cold winters. The air temperature for the years 1970 through 1978 ranged from a high of 100 degrees Fahrenheit (F) in July of 1970 to a low of -20 degrees F. in January 1977. Total annual precipitation for the same period averaged about 41 inches per year. Prevailing winds are from the southwest, averaging about 7 miles per hour.

The soils in the Champaign area are mainly upland prairie of the Drummer-Flanagan and Elburn-Plano groups. The first is characterized as dark colored and poorly drained with moderate permeability, and the second as dark colored and moderately to well-drained with moderate permeability (Reference 2).

CAUSE AND MAGNITUDE OF URBAN WATER DAMAGE PROBLEMS

Overbank Flooding. Boneyard Creek, Phinney Branch and Copper Slough flow through the city of Champaign where developed areas are located on both banks of each stream. Development in the flood plain is primarily residential with a large number of commercial establishments and apartment buildings, a few public buildings, industries and transportation routes.

A storm occurred on 30 July 1979, resulting in 3.46 inches (10-year frequency) of rainfall over a 12-hour period, and producing a peak discharge of about 982 cubic feet per second (cfs), estimated by the USGS, at the gage near the University of Illinois Fire Station on Boneyard Creek in Urbana about 0.1 mile downstream of the Study Area. The largest recorded storm event on this stream was in July 1962 when 3.98 inches (7-year frequency) fell over a 24-hour period resulting in a discharge of 374 cfs at the above-mentioned gage.

The flood damage caused by the July 1979 flood was widespread along Boneyard Creek with the University of Illinois campus, Green Street, Oak-Ash and Edgebrook areas the hardest hit. Businesses along Green Street reported basements full and up to one foot of water on the first floor.

Many of these businesses were forced to close for a period of time after the flooding for repair and clean-up. Many businesses reported that they were able to avoid greater financial loss by arriving at their stores in time to move merchandise prior to severe flooding.

Two other businesses reported major losses. The Corn County Whole Food Supply on South Market Street in Champaign reported large losses of food supplies when more than five feet of water flooded the ground floor of the building. The Colwell Publishing Company on Kenyon Road in Champaign had damage to paper products when floodwaters filled the basement. In combination the two companies reported damages in excess of $300,000.

The University of Illinois suffered an estimated $603,000 worth of direct damage at various locations on the campus. Almost two feet of water stood in the Electrical Engineering Research Laboratory with flooding also experienced in the Electrical Engineering Building, Electrical Engineering Annex, Talbot Laboratory, and the Metallurgy and Mining Building. Besides structural damage and clean-up, this flooding led to damage of both paper supplies and research equipment. Floodwaters in the buildings ranged from one-half foot to just under three feet. A majority of these buildings are on the Urbana side of the campus.

Table 2 presents a summary of the reported damages along Boneyard Creek. It should be noted that this is only a partial list of damages suffered. Although it probably includes most of the large scale damage, it is known that financial losses occurred at various locations along the Boneyard Creek for which estimates are not available. In general, the damages reported in Table 2 include damages to structure, contents, clean-up, cost of safeguarding health, rerouting traffic, loss of municipal services, etc., and probably represents about 90 percent of the total damages.

TABLE 2

Damages Attributable to 30 July 1979 Flood

Boneyard Creek

Champaign, Illinois

Item	Total Damage
University of Illinois	$ 603,000
Damage to business	710,000
Residential	83,000
Total	$ 1,396,000

Phinney Branch and Copper Slough experienced high water due to short, intense thunderstorms common in central Illinois. No flood events have been measured or high water marks recorded. (Reference 2.)

Apparent Cause of Overbank Flooding. Boneyard Creek is a typical urbanized drainage basin which drains a significant portion of the City of Champaign. The stream is crossed by approximately 31 bridges in the study area, many of which are undersized, so that the problem of drainage becomes increasingly complex. Although never having experienced a 100-year frequency rainfall, Boneyard Creek has been subjected throughout its history to numerous rainfalls of approximately a 10-year frequency.

There are over 100 major locations in the Champaign city limits reported to have flooding problems. Many of these locations are shown on Figure 11. The problems include combinations of overbank flooding, ponding, sewer backup, and in some cases a lack of sewers altogether. The locations may consist of only a few homes or a large section of the community. Sixteen of the locations are considered to have chronic flooding

problems, with the remainder being judged tolerable. Eight of the chronic flooding problem areas are associated with inadequate capacity of Boneyard Creek.

Copper Slough is generally capable of adequately transporting the 100-year flood flow. With the exception of the water plant access road and Parkland Road, which were designed to be overtopped, the Flood Insurance Study (FIS) predicts the 100-year flood will safely pass under every street and railroad crossing.

Phinney Branch is generally in good condition and adequately transports storm flows, with the exception of some reaches which have a heavy overgrowth of weeds.

The FIS analyzed the Phinney Branch from Winsor Road downstream to I-57. The study shows the channel can safely pass the 10-year flood under every road crossing and within the channel banks. The Southwood area, which is not heavily developed, may become a critical reach in the future as development proceeds.

Significant channel improvements made in recent years were constructed upstream to Crescent Drive. However, between Southwood and Mattis Avenues, significant channel improvements have been made in recent years and the stream should contain the 100-year flood. (Reference 3.)

Apparent Causes of Other Flooding. There has been an inventory and evaluation of the existing storm sewer system and a tabulation of the deficiencies in this system which identified the major chronic flooding problem areas in Champaign. Of the 106 existing drainage basins studied having closed conduit storm sewers, 36 percent of these storm sewer systems have sufficient capacity to carry the peak runoff flow from a nominal 5-

year rainfall event. Approximately 40 percent of the storm sewer systems studied can convey less than one-half of the runoff from the nominal 5-year rainfall event. Nearly 24 percent of the storm sewer systems studied can convey greater than one-half of the nominal 5-year rainfall runoff, but are inadequate to convey the full 5-year rainfall event. (Reference 3)

Estimated Frequency of Flooding. Normally, a detailed hydrological and hydraulic analysis would be beyond the scope of a report of this nature. However, a final Flood Insurance Study, dated July 1980, for the City of Champaign had been made. Discharges in this study are based on the Boneyard Creek gage, which gages the urbanized watershed. The discharge-frequency analysis set forth in the U.S.G.S. publication on Techniques for Estimating Magnitude and Frequency of Floods in Illinois does not include urbanization; therefore, this method was not considered applicable for this study.

The above-mentioned FIS contained detailed profiles on all the streams in this report. Profiles were obtained by a backwater model (HEC-2) using field surveyed and digitized cross sections. All bridges were field surveyed. Using the flows from the FIS, the approximate method set forth in the U.S.G.S. publication, Depth and Frequency of Floods in Illinois was used for a comparison with water surface elevations predicted by the HEC-2 model. Generally, HEC-2 results provided depths comparable to the approximate method. Where unusual hydraulic conditions existed, such as constricted bridge openings, steep channel gradients, etc., the HEC-2 results provided a more refined answer. Basin characteristics of Boneyard Creek, Copper Slough, Phinney Branch and their tributaries are presented in Table 3.

TABLE 3

Drainage Basin Characteristics

Basin and Stream	Area Square Miles	Slope, Feet per Mile
Boneyard Creek Basin at Wright St.	4.1	-
Boneyard Creek	4.1	11.4
Upper Boneyard Creek	1.1	15.7
Third Street Boneyard Creek Tributary	1.4	6.9
Copper Slough Basin at William St.	7.4	-
Copper Slough	7.4	11.8
John Street Copper Slough Tributary	2.1	34.0
Phinney Branch Basin at Duncan Rd.	5.2	-
Phinney Branch	5.2	7.9

Flood discharges and depths for the 2-, 5-, 10-, 25-, 50-, and 100-year floods are presented in Table 4. Flood profiles for these floods are shown in Figures 3 through 8.

TABLE 4

Discharges and Depth-Frequency of

Boneyard Creek, Copper Slough and Phinney Branch

Stream	Location	Recurrence Interval (years)	Discharge (cfs)	Depth (feet)	Water Surface Elevations (NGVD)
Boneyard Creek	Healy St.	2	210	4.6	718.8
	(Mile 2.24)	5	270	5.8	720.0
		10	324	6.2	720.4
		25	420	6.8	721.0
		50	512	7.1	721.3
		100	642	7.8	722.0
Upper Boneyard	Neil St.	2	220	3.8	734.3
Creek	(Mile 0.00)	5	275	4.4	734.9
		10	333	4.9	735.4
		25	420	5.2	735.7
		50	517	5.2	735.7
		100	597	5.9	736.4
Third St.	Mouth	2	150	3.7	718.6
Boneyard Creek	(Mile 0.00)	5	190	4.7	719.6
Tributary		10	236	5.3	720.2
		25	340	5.8	720.7
		50	440	6.4	721.3
		100	598	7.0	721.9

TABLE 4 Cont'd

Stream	Location	Recurrence Interval (years)	Discharge (cfs)	Depth (feet)	Water Surface Elevations (NGVD)
Copper Slough	Interstate 57	2	400	4.3	709.2
	Upstream	5	500	5.0	709.9
	(Mile 0.00)	10	611	5.5	710.4
		25	770	6.3	711.2
		50	931	6.5	711.4
		100	1,216	7.4	712.3
~~John St.~~ North Br. Copper Slough Tributary	Mouth	2	130	3.8	717.5
	(Mile 0.00)	5	160	4.6	718.3
		10	198	5.2	718.9
		25	250	5.8	719.5
		50	304	6.3	720.0
		100	397	7.3	721.0
Phinney Branch	Interstate 57	2	490	4.8	706.1
	Upstream	5	620	5.6	706.9
	(Mile 0.00)	10	757	6.3	707.6
		25	960	6.8	708.1
		50	1,153	7.3	708.6
		100	1,322	7.8	709.1

Estimated Annual Flood Damages. The 150 acre, 140 acre and 100 acre 100-year flood plains of Boneyard Creek, Copper Slough and Phinney Branch, respectively, at Champaign were delineated on the U.S. Geological Survey topography map (scale 1:24,000) after it had been enlarged to a scale of

approximately 1 inch = 200 feet. Using this flood plain map (Figure 10) as a guide, structures within the 100-year flood plain were inventoried by field survey and ground elevations were determined. This map is not presented in this report because of size limitation. However, for purposes of this report, the 100-year flood plain was also delineated on the same topographic map after it had been enlarged to a scale of 1 inch = approximately 1,000 feet. The number of structures in the study areas, along with the present average value of the structures, percent of structures with basements, and percent of single story structures, were determined by field survey.

These data, along with relevant hydrologic data, were analyzed by the U.S. Army Corps of Engineers, Chicago District, Economics Branch, using a computer program for the estimation of residential flood damage attributable to overbank flooding. The output of this program provided an estimate of average annual residential flood damages (Figure 9).

The estimated average annual damage to single family residential structures and contents in the Boneyard Creek flood plain is $26,000. Of this total, structural damage is estimated at $19,400. There were no estimated average annual damages to the 47 mobile homes in the Upper Boneyard Creek area through the 100-year event. The Third Street Boneyard Creek Tributary flood plain, encompassing only a single residential structure, incurred $100 in average annual damage. No content damage was indicated.

Storm Drainage and Ponding. Storm drainage and ponding is a major problem in Champaign. The darkened areas shown on Figure 11 generally indicate the extent of the area effected by localized flooding or ponding

during severe storm periods. The type of land use effected includes residential, commercial, industrial, public, quasi-public, and transportation.

PREVIOUS DRAINAGE OR FLOOD CONTROL STUDIES AND PROJECTS

Throughout Boneyard Creek's history it has undergone significant modification from its natural state. In the late 1890's and early 1900's portions of Boneyard Creek were straightened and covered, with little consideration given to improved drainage. In an effort to improve drainage, a large portion of Boneyard Creek was sheet piled in the early 1960's in Urbana, about one-half mile downstream of the Champaign corporate limits. This project had very little, if any, impact on Champaign. Also in 1960, a diversion channel was constructed in northwest Champaign at Neil Street which bypasses flows from the Upper Boneyard Creek into the Saline Branch continually until the water elevation reaches 735.7 feet N.G.V.D. at which time overflow to the Boneyard Channel would occur.

Numerous beautification and channel clearing projects have been undertaken on Boneyard Creek since 1969. In 1976 a study was initiated by the Boneyard Creek Commission to obtain a Master Plan for Boneyard Creek; this study was completed in 1978. Currently, there is a storm water detention structure under construction on Boneyard Creek which will contain 15.2 acre-feet of storage. This structure is located north of the Penn Central Railroad and east of the Illinois Central Gulf Railroad. Other studies include Flood Insurance Study, City of Champaign, Illinois by the Federal Emergency Management Agency in July 1980, Boneyard Creek Study Analysis and Recommendations, by the Champaign County Regional Planning Commission in

September 1975, and An Engineer's History of Boneyard Creek in Champaign-Urbana, Illinois, by Ralph D. Wilson in April 1978. The State of Illinois is currently preparing a "Strategic Planning Study."

PLANNED ACTION TO ALLEVIATE URBAN WATER DAMAGE PROBLEMS

Current plans by the city of Champaign to alleviate the urban water damage problems in the city include combinations of channel improvements, detention storage, and upgraded storm sewer systems.

Of the 16 chronic flooding problems, 14 major high priority improvements are proposed at an estimated total cost of $4.6 million. Four major projects having medium-priority are proposed at a cost of $2.1 million. Two projects having low priority are proposed at an estimated cost of $34 million. For areas surrounding Champaign within the study limits of the Comprehensive Drainage Study (Reference 3) that are currently undeveloped or in the process of being developed, the estimated cost for providing adequate storm sewer interceptors is $12.5 million without a program of detention storage and $10.7 million with a program of detention storage.

Community land use goals expressed by significant segments of the community can be made compatible with storm water management. Such goals include more open spaces, urban beautification, dedication of land for public use, and more efficient use of land without environmental degradation associated with high densities over extensive areas.

Project accomplishments have been slow on Boneyard Creek projects due mainly to lack of financing. However, a number of the less expensive projects have been built, such as the Neil Street Diversion of storm water into the Saline Branch and a diversion in the south end of the city into the Embarass River. There have been significant channel improvements on

different segments of Phinney Branch and a gabion line channel improvement on Upper Boneyard Creek. There has been a new section of storm sewer built on Neil Street and an extension of the south State Street storm sewer. Also, a detention basin is now under construction in the vicinity of the Illinois Central Gulf and Penn Central Railroads.

Uncontrolled flows from the newly constructed State Street storm sewer will undoubtedly aggravate the flooding problems around the Mattis Park Lake and in the Par 3 Golf Course. The effectiveness of this project will likely not be realized until the flowline at the Route 45 and ICGRR culverts is lowered, creating a steeper hydraulic gradient for draining the Mattis Park Lake area.

Some form of runoff control policy for the City of Champaign is obviously desirable. There are several items which have a potential impact on any considered policy, including the following:

(1) recent interpretations and proposed changes in Illinois drainage law

(2) proposed land dedication ordinances

(3) flood plain regulation

(4) proposed erosion and runoff control ordinances.

These laws and regulations have overlapping goals which could best be met by multipurpose and inter-agency efforts to develop an overall storm water management program. (Reference 3)

CONCLUSIONS

An analysis of the available data, discussions with local public officials and residents, and damage estimates confirm that the city of Champaign does have a serious flooding problem.

The flooding problems associated with the Boneyard Creek stem from a combination of factors. The first is the high degree of urbanization within the watershed. Due to a high percentage of impervious area and channeling of the runoff in storm sewers, higher flow peaks are experienced from this urbanized basin than would be for a rural basin with equivalent characteristics. Secondly, the natural drainage patterns have been altered during highway construction and storm drainage projects causing an increase in the potential flow of the Boneyard Creek during storm events. A third serious problem involves the depth of flow in the stream during storm events relative to the areas draining into the creek. For example, some of the storm sewer inlets along Green Street are lower than the water surface at the Boneyard Creek during large storm events. The water level in the creek is deep enough to significantly reduce the carrying capacities of the storm sewers draining to it. Even in moderate rains, streets are flooded and backwaters develop in the lower lying areas.

Examining the causes and the nature of the flooding problems and the various alternative plans that can be adopted to alleviate the problems, there appears to be no single obvious solution.

In the 20-year period from 1960 through 1979, peak discharges recorded at the USGS gage near the University of Illinois Fire Station exceeded 500 cubic feet per second in 12 of those years. Storms of this nature cause numerous street closings along Boneyard Creek, especially in the Campus Town area along Green Street. There is no serious threat to life; however, there could be a hazard to health. Also, there is a problem with stream bank erosion. Property losses are suffered by both public and private owners and cleaning of flood deposits is required following each severe flood such as the July 1979 event.

RECOMMENDATIONS

Factors contributing to the overbank flooding within the city of Champaign from the Boneyard Creek are: the high degree of urbanization, channeling of the runoff in storm sewers into the stream, lack of depth of flow in the stream, and altering of natural drainage patterns.

In the fall of 1978 the Boneyard Creek Commission released the Boneyard Creek Master Plan consisting of two volumes. The first volume presents the overall Master Plan and the second volume includes detailed engineering data. The Master Plan is a conceptual plan to serve as a guide for the future improvements of Boneyard Creek, such as: storm water detention basins, channel improvements, box culverts, storm water collection system renovation, and flood plain management. In addition to extensive flood damage reduction, the plan was developed with the goal of turning the Boneyard Creek into a community asset for recreation and urban beautification.

Based on the above discussion it is recommended that the measures discussed in the Boneyard Creek Master Plan be undertaken as expeditiously as finances will permit.

Champaign came under the Regular Flood Insurance Program on 16 January 1981. It is recommended that the city comply with the regulations of this program.

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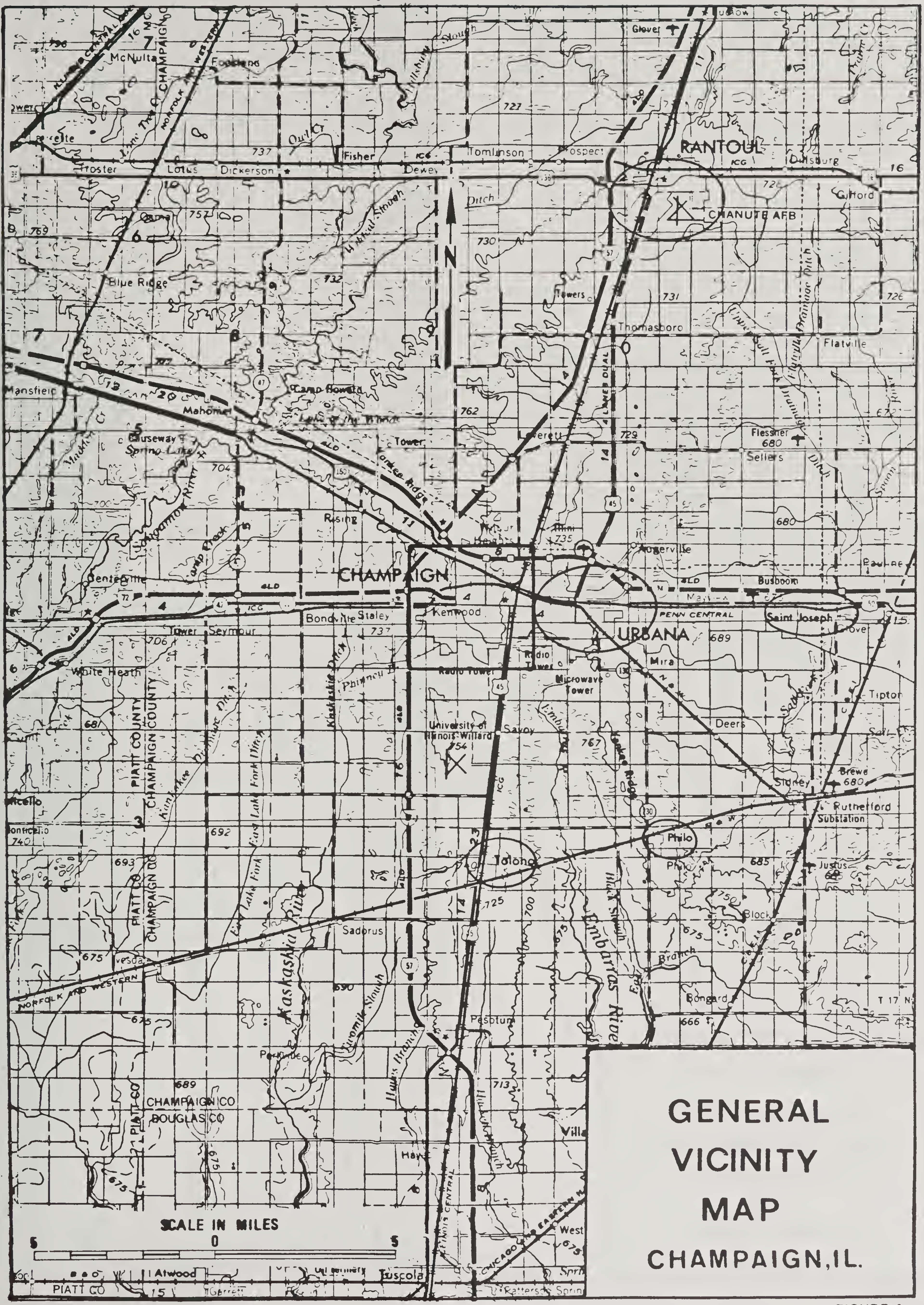
6. Mr. Steve Schaffer and Mr. Bob Clayton, Engineering Division, City of Champaign, Champaign, Illinois

7. Mr. Carl Garrison, P.E., Executive Director, Urbana and Champaign Sanitary District, Urbana, Illinois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Tomlinson
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Dillsburg
Gifford
Foster
Lotus
Dickerson
McNulta
Blue Ridge
Mansfield
Mahomet
Causeway
Spring Lake
Lake of the Woods
Camp Howard
Tower
Leverett
Fleshner
Sellers
Rising
Bondville
Staley
Kenwood
Seymour
White Heath
Centerville
Rogerville
Busboom
Mira
Deers
Tipton
Sidney
Rutherford Substation
Justus
Block
Bongard
Sadorus
Pesotum
Radio Tower
Microwave Tower
PIATT COUNTY
CHAMPAIGN COUNTY
CHAMPAIGN CO
DOUGLAS CO
PIATT CO
Atwood
Tuscola
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Sangamon River
NORFOLK AND WESTERN
PENN CENTRAL
ILLINOIS CENTRAL
ICG
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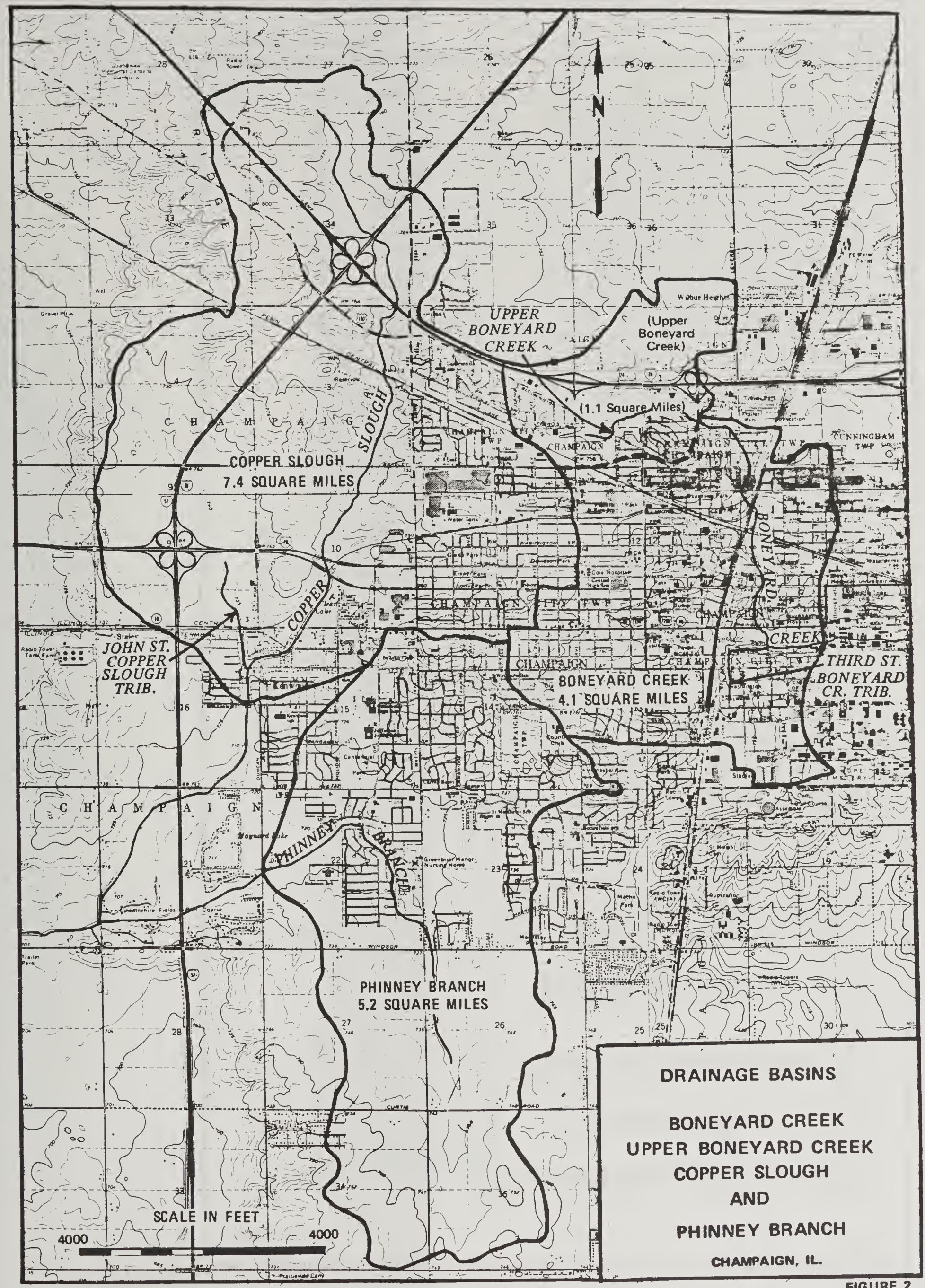
FIGURE 1



DRAINAGE BASINS

BONEYARD CREEK
UPPER BONEYARD CREEK
COPPER SLOUGH
AND
PHINNEY BRANCH

CHAMPAIGN, IL.

FIGURE 2

CORPS OF ENGINEERS

U. S. ARMY

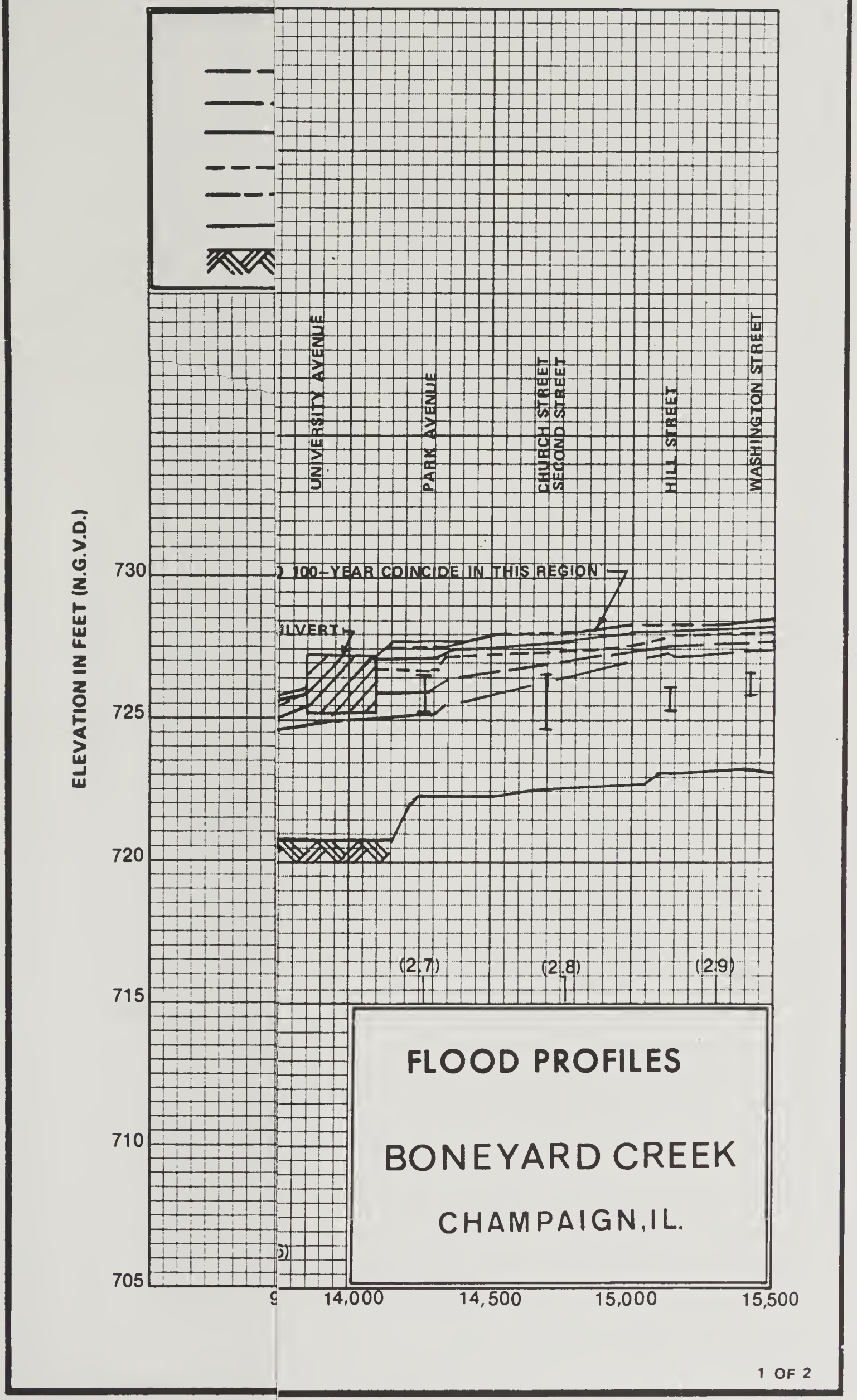


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FIGURE 3

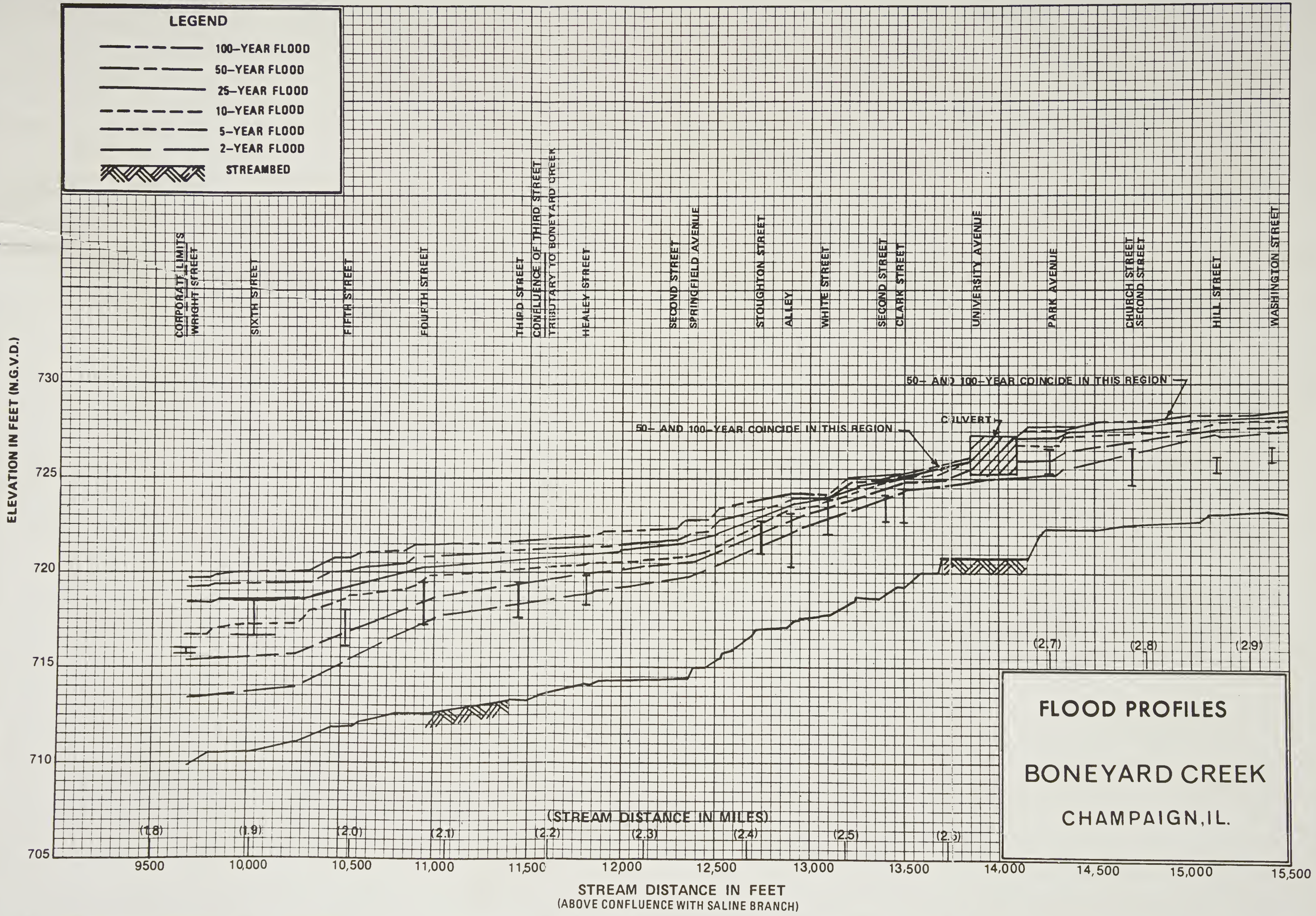

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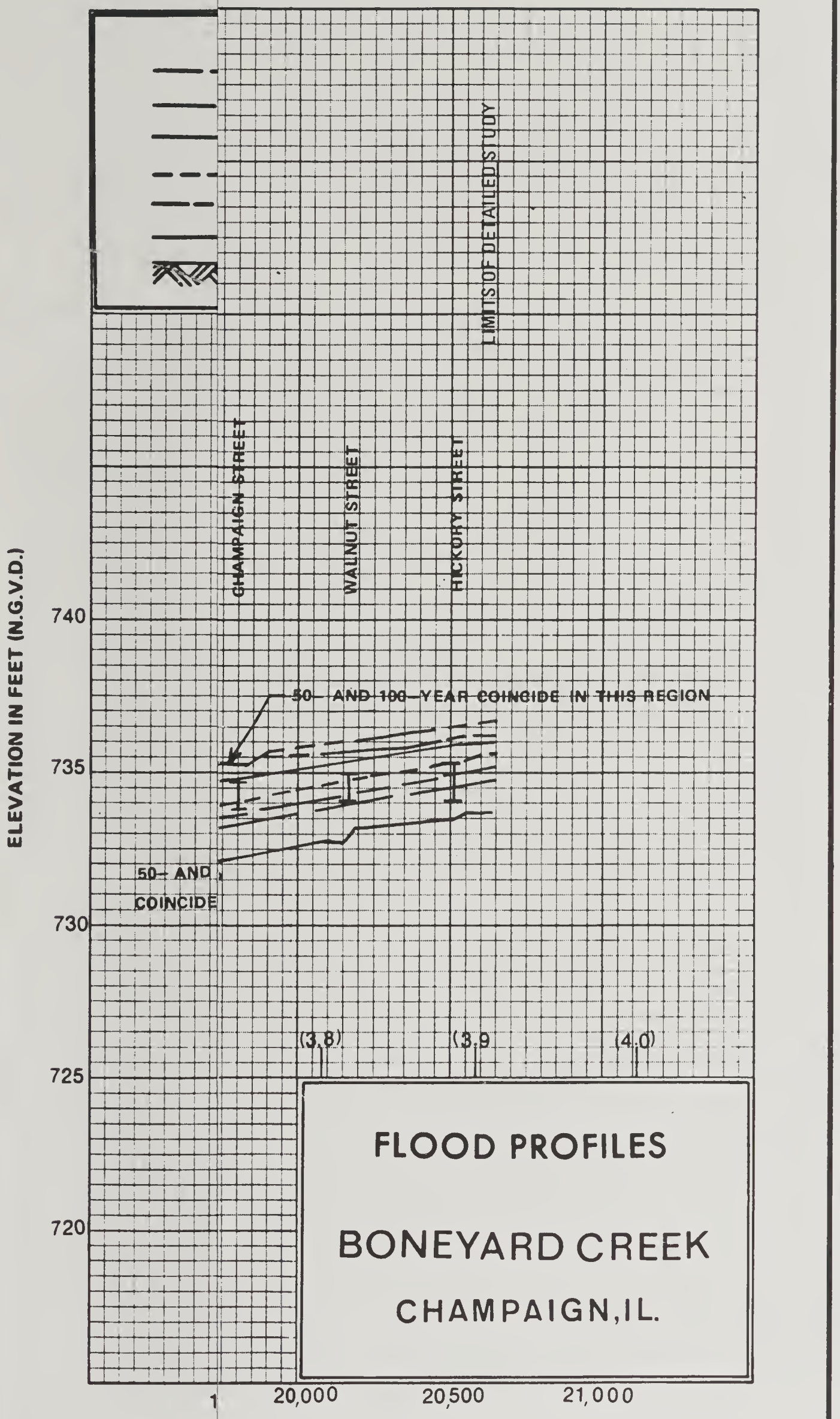
FIGURE 3

CORPS OF ENGINEERS

U. S. ARMY



2 OF 2

FIGURE 3

CORPS OF ENGINEERS

U. S. ARMY

LEGEND

- 100–YEAR FLOOD
- 50–YEAR FLOOD
- 25–YEAR FLOOD
- 10–YEAR FLOOD
- 5–YEAR FLOOD
- 2–YEAR FLOOD
- STREAMBED

ELEVATION IN FEET (N.G.V.D.)

740

735

730

725

720

NORFOLK AND WESTERN RAILWAY
CONRAIL

ILLINOIS CENTRAL GULF RAILROAD

ACCESS ROAD
ILLINOIS TERMINAL RAILROAD

COLLEGIATE CAP AND GOWN

CRADLEY AVENUE

GARWOOD STREET

MARKET STREET

BELLEFONTAINE STREET

CHAMPAIGN STREET

WALNUT STREET

HICKORY STREET

LIMITS OF DETAILED STUDY

50– AND 100–YEAR COINCIDE IN THIS REGION

50– AND 100–YEAR
COINCIDE IN THIS REGION

(STREAM DISTANCE IN MILES)

(3.0) (3.1) (3.2) (3.3) (3.4) (3.5) (3.6) (3.7) (3.8) (3.9) (4.0)

15,500 16,000 16,500 17,000 17,500 18,000 18,500 19,000 9,500 20,000 20,500 21,000

STREAM DISTANCE IN FEET
(ABOVE CONFLUENCE WITH SALINE BRANCH)

FLOOD PROFILES

BONEYARD CREEK

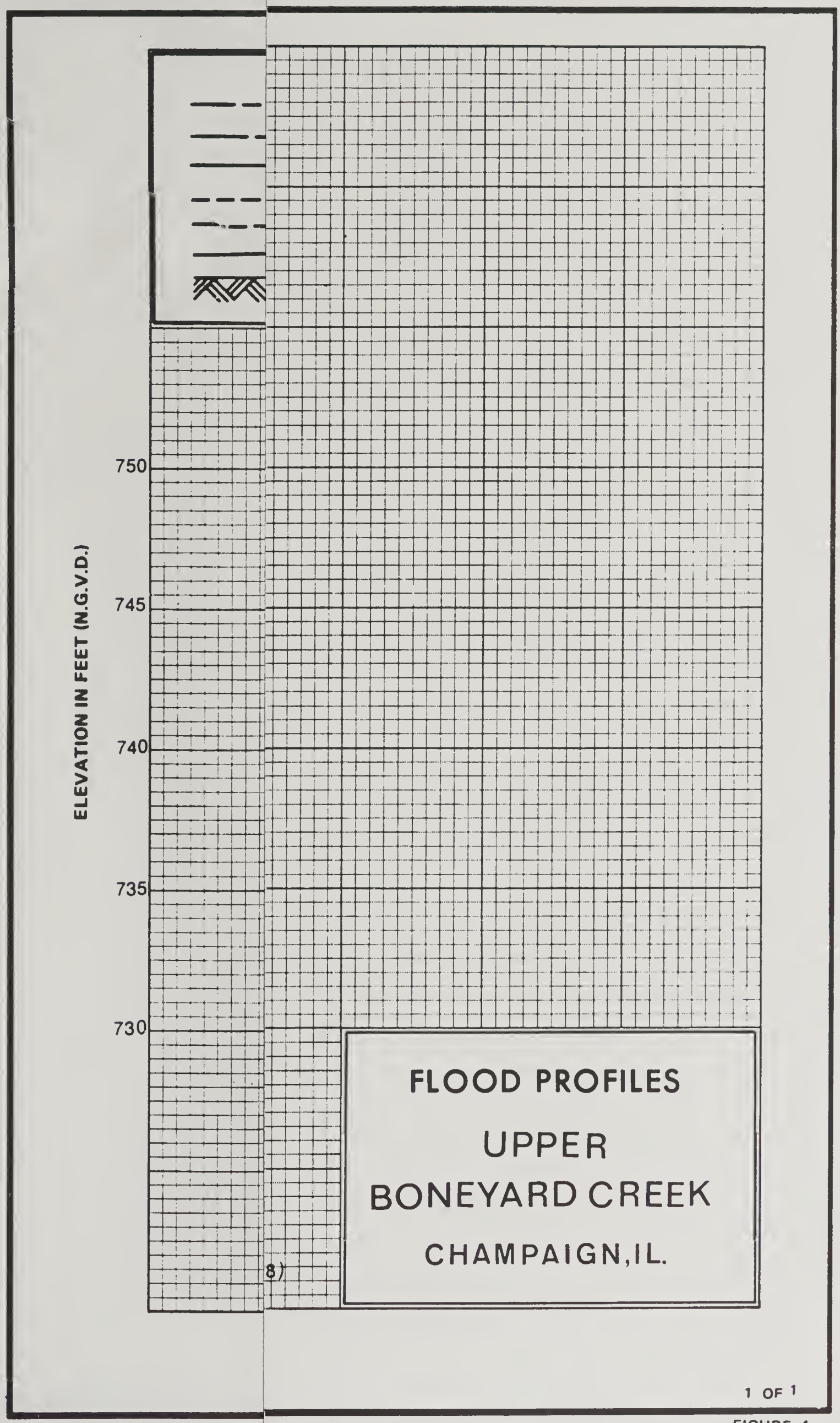
CHAMPAIGN, IL.

2 OF 2

FIGURE 3

CORPS OF ENGINEERS

U. S. ARMY



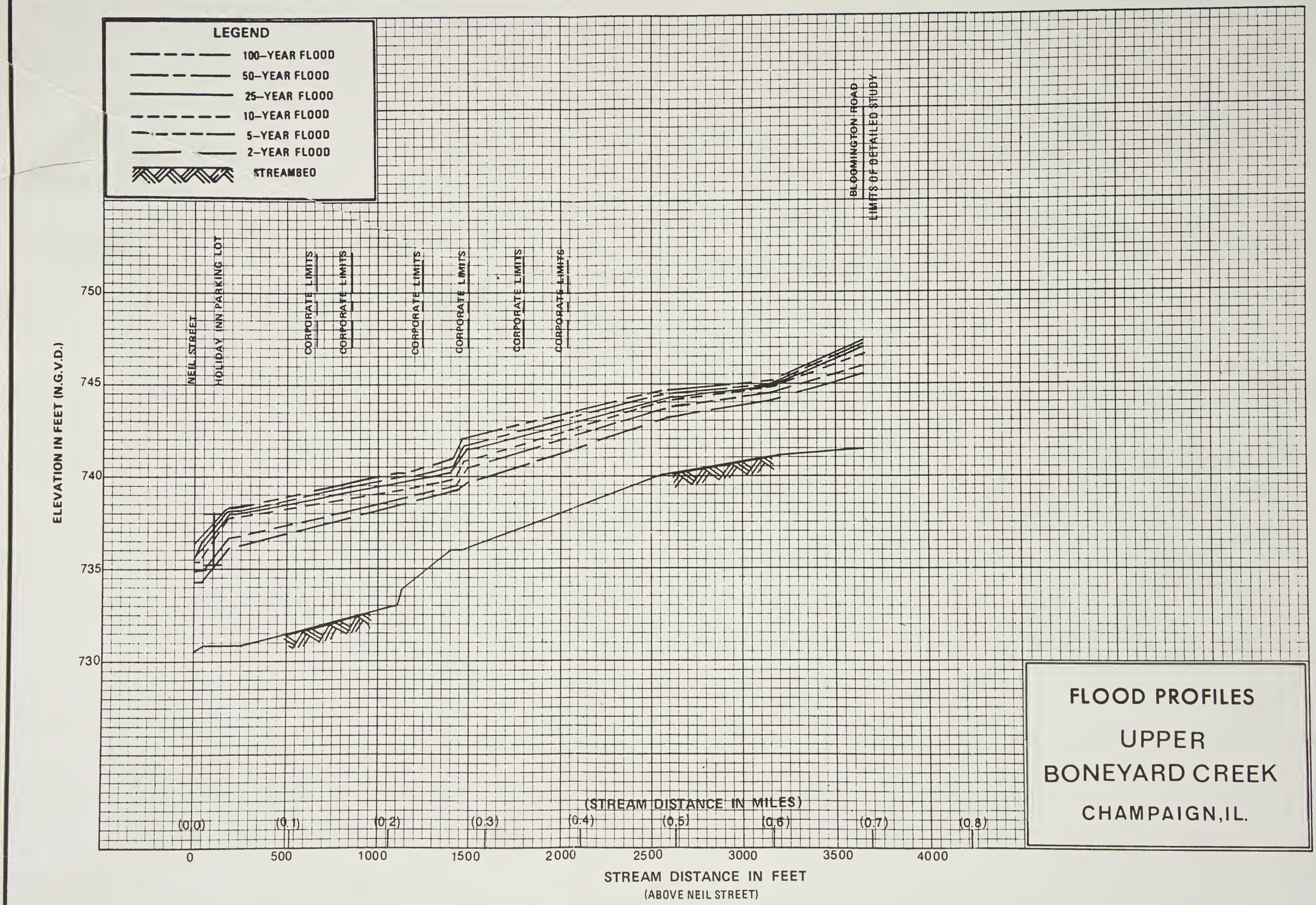
FLOOD PROFILES

UPPER BONEYARD CREEK

CHAMPAIGN, IL.

1 OF 1

FIGURE 4



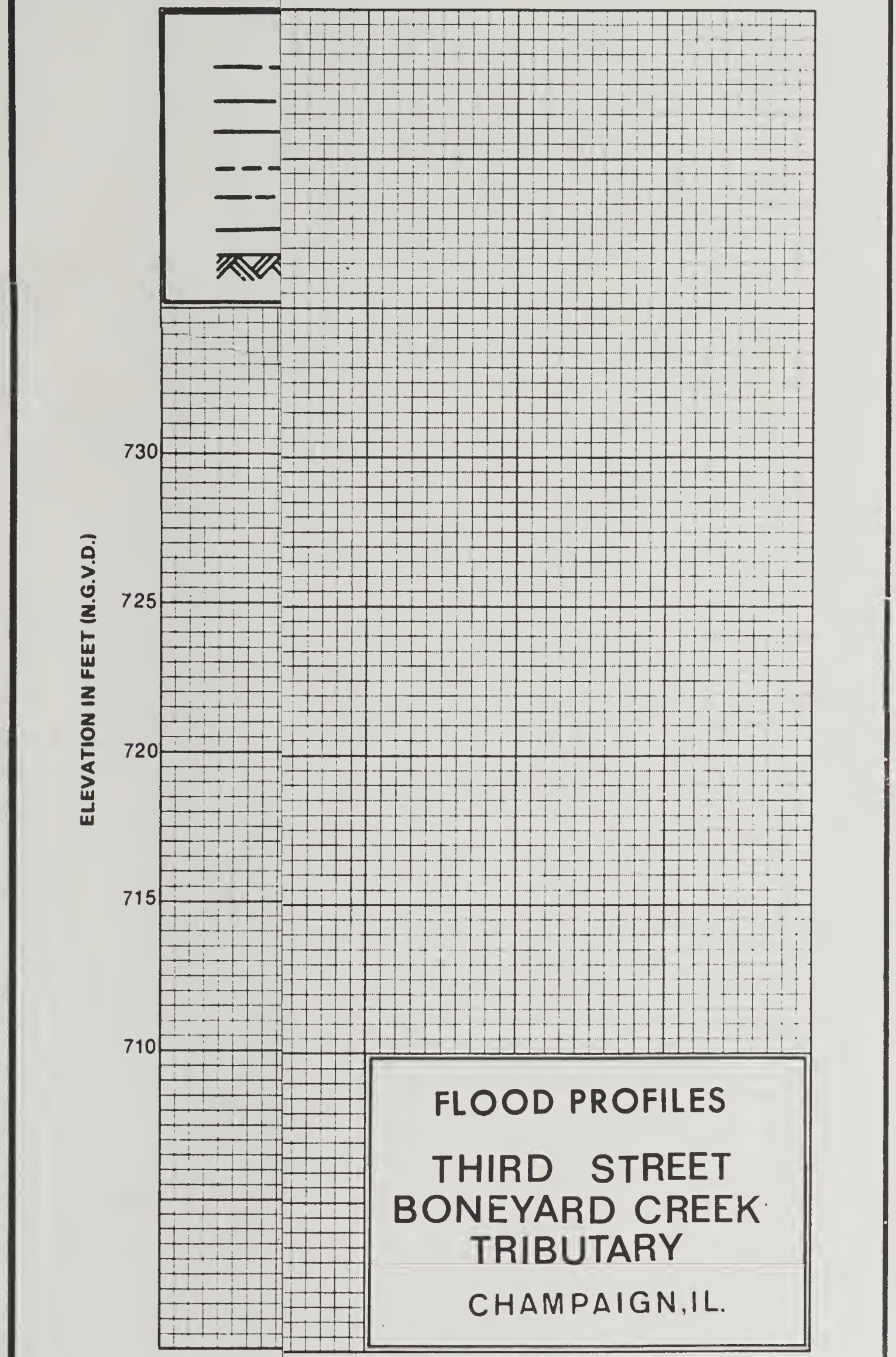
FLOOD PROFILES

UPPER BONEYARD CREEK

CHAMPAIGN, IL.

CORPS OF ENGINEERS

U. S. ARMY



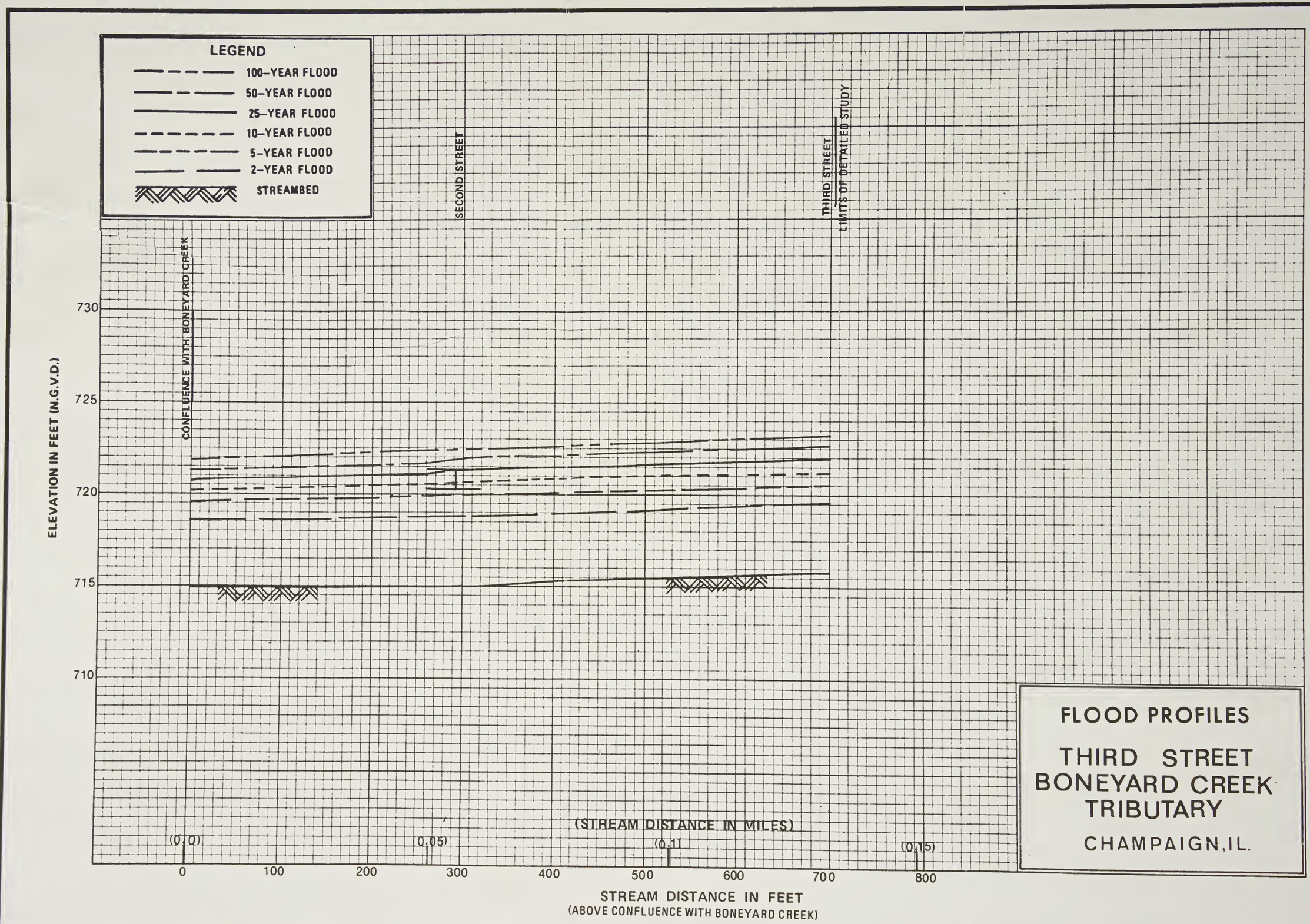
FLOOD PROFILES

THIRD STREET
BONEYARD CREEK TRIBUTARY

CHAMPAIGN, IL.

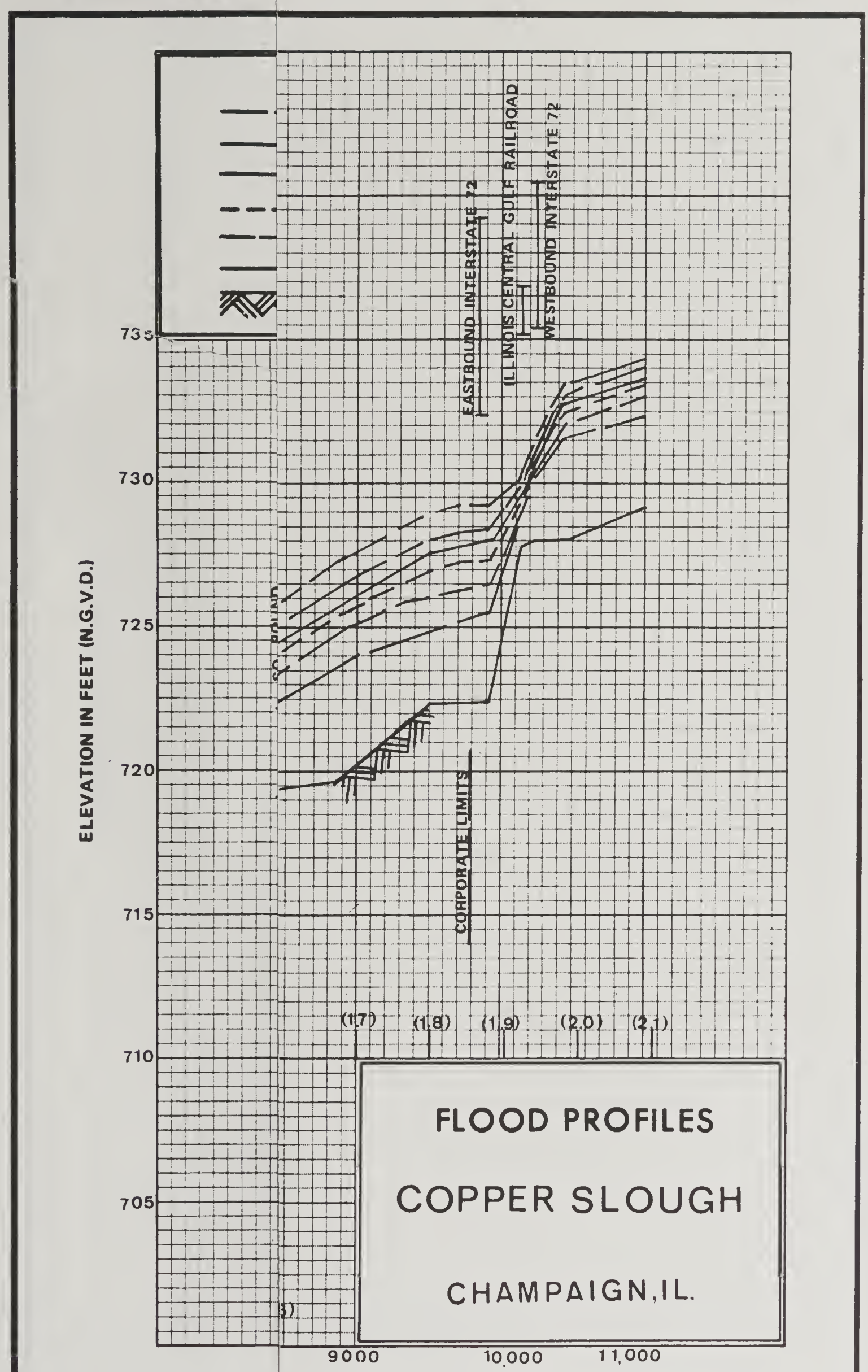
1 OF 1

FIGURE 5


LEGEND
100–YEAR FLOOD
50–YEAR FLOOD
25–YEAR FLOOD
10–YEAR FLOOD
5–YEAR FLOOD
2–YEAR FLOOD
STREAMBED
SECOND STREET
THIRD STREET
LIMITS OF DETAILED STUDY
CONFLUENCE WITH BONEYARD CREEK
ELEVATION IN FEET (N.G.V.D.)
730
725
720
715
710
(0.0)
(0.05)
(0.1)
(0.15)
0
100
200
300
400
500
600
700
800
(STREAM DISTANCE IN MILES)
STREAM DISTANCE IN FEET
(ABOVE CONFLUENCE WITH BONEYARD CREEK)
FLOOD PROFILES
THIRD STREET
BONEYARD CREEK
TRIBUTARY
CHAMPAIGN, IL.

CORPS OF ENGINEERS

U. S. ARMY



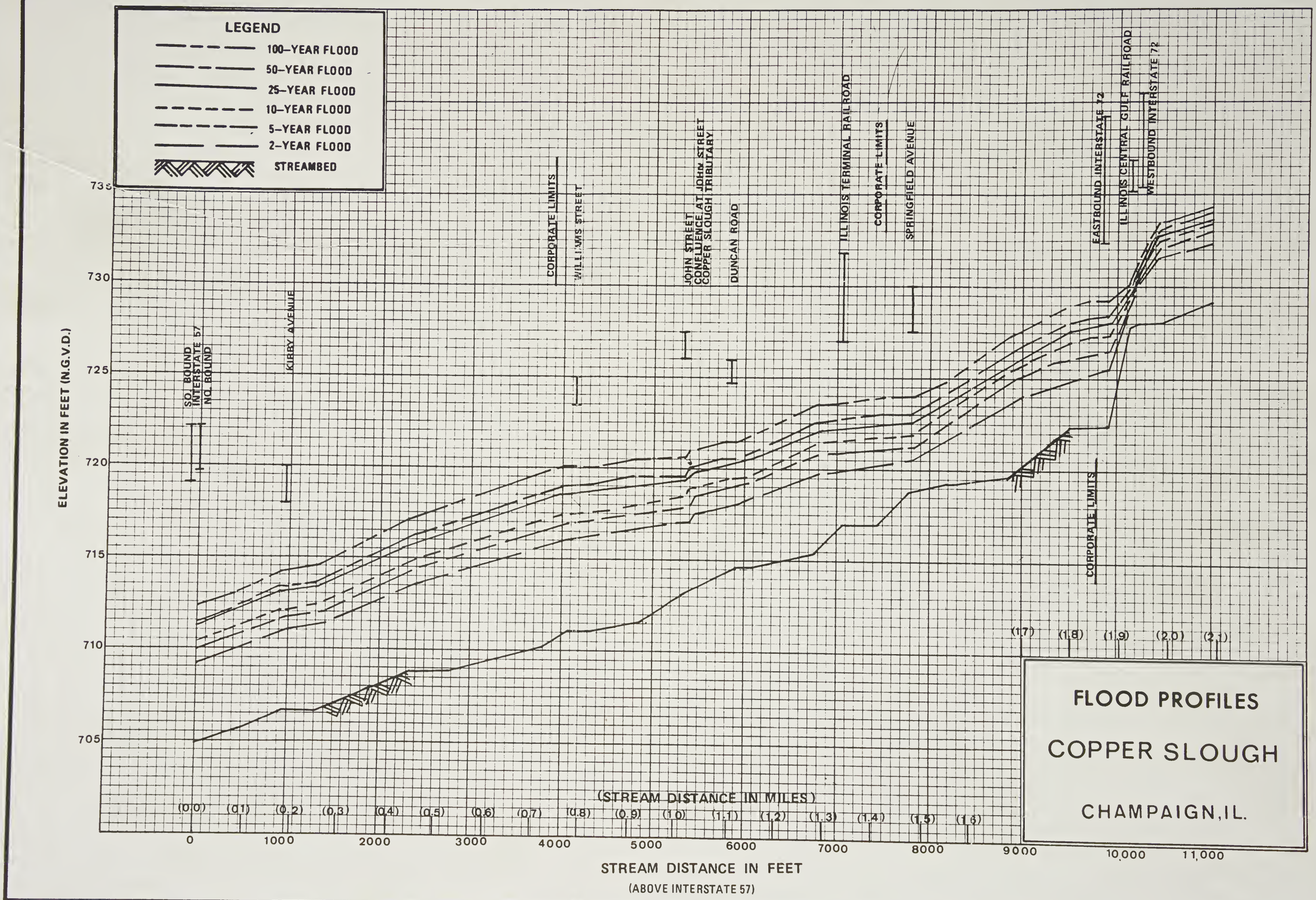
FLOOD PROFILES

COPPER SLOUGH

CHAMPAIGN, IL.

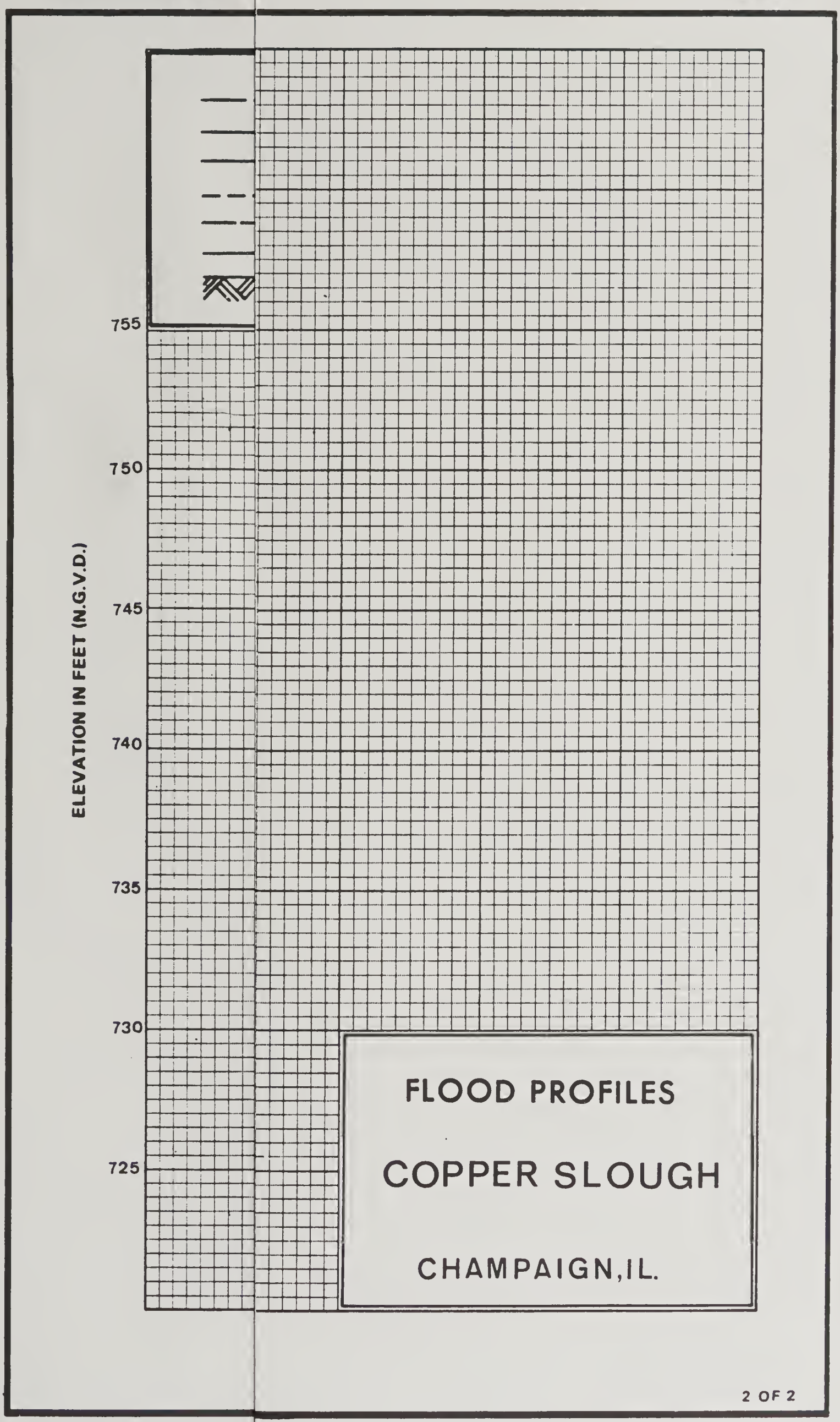
1 OF 2

FIGURE 6


LEGEND
100–YEAR FLOOD
50–YEAR FLOOD
25–YEAR FLOOD
10–YEAR FLOOD
5–YEAR FLOOD
2–YEAR FLOOD
STREAMBED
ELEVATION IN FEET (N.G.V.D.)
735
730
725
720
715
710
705
SO. BOUND INTERSTATE 57
NO. BOUND
KIRBY AVENUE
CORPORATE LIMITS
WILLIAMS STREET
JOHN STREET CONFLUENCE AT JOHN STREET COPPER SLOUGH TRIBUTARY
DUNCAN ROAD
ILLINOIS TERMINAL RAILROAD
CORPORATE LIMITS
SPRINGFIELD AVENUE
EASTBOUND INTERSTATE 72
ILLINOIS CENTRAL GULF RAILROAD
WESTBOUND INTERSTATE 72
CORPORATE LIMITS
(STREAM DISTANCE IN MILES)
(0.0) (0.1) (0.2) (0.3) (0.4) (0.5) (0.6) (0.7) (0.8) (0.9) (1.0) (1.1) (1.2) (1.3) (1.4) (1.5) (1.6) (1.7) (1.8) (1.9) (2.0) (2.1)
0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10,000 11,000
STREAM DISTANCE IN FEET
(ABOVE INTERSTATE 57)
FLOOD PROFILES
COPPER SLOUGH
CHAMPAIGN, IL.

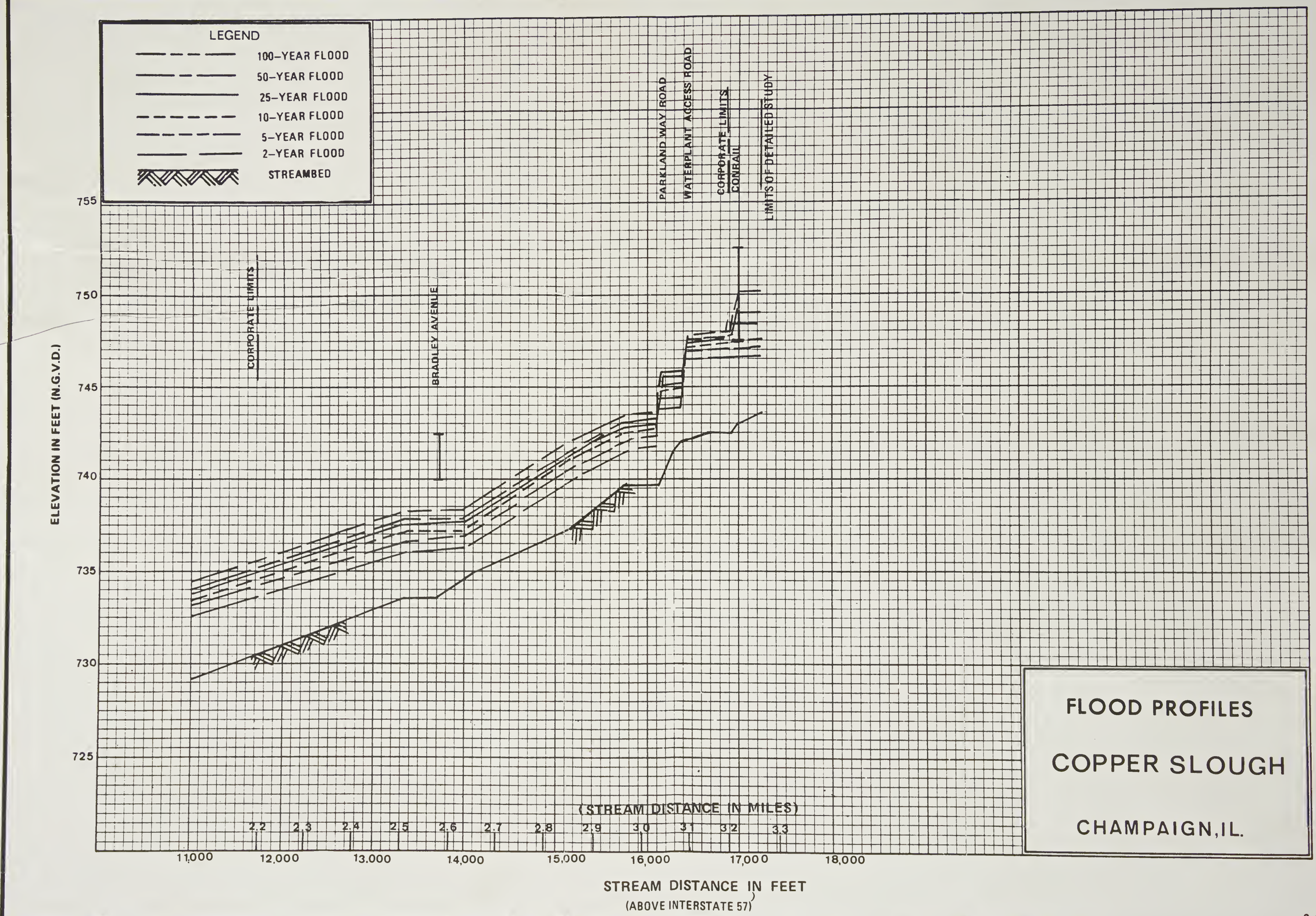
CORPS OF ENGINEERS

U. S. ARMY



2 OF 2

FIGURE 6



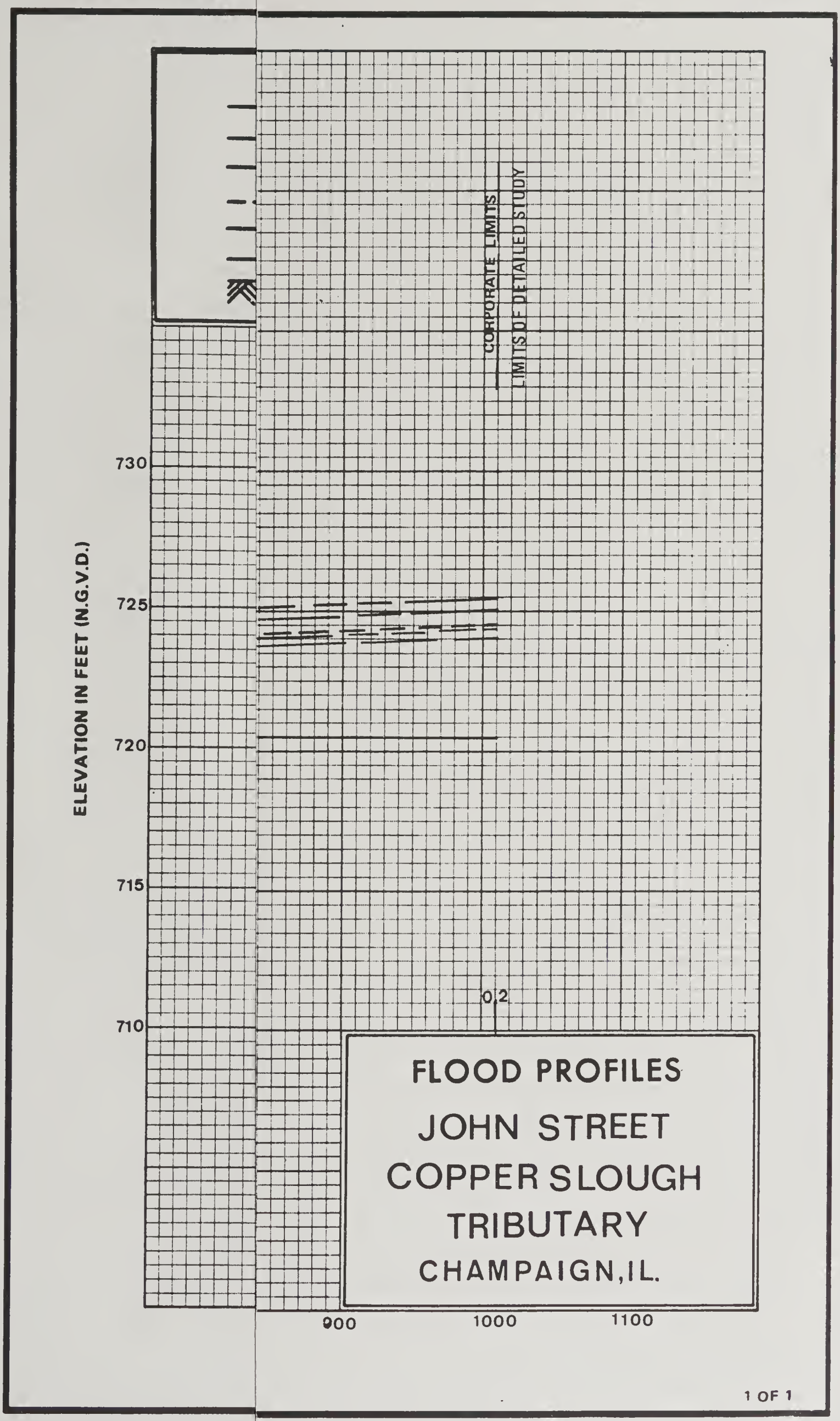
FLOOD PROFILES

COPPER SLOUGH

CHAMPAIGN, IL.

CORPS OF ENGINEERS

U. S. ARMY



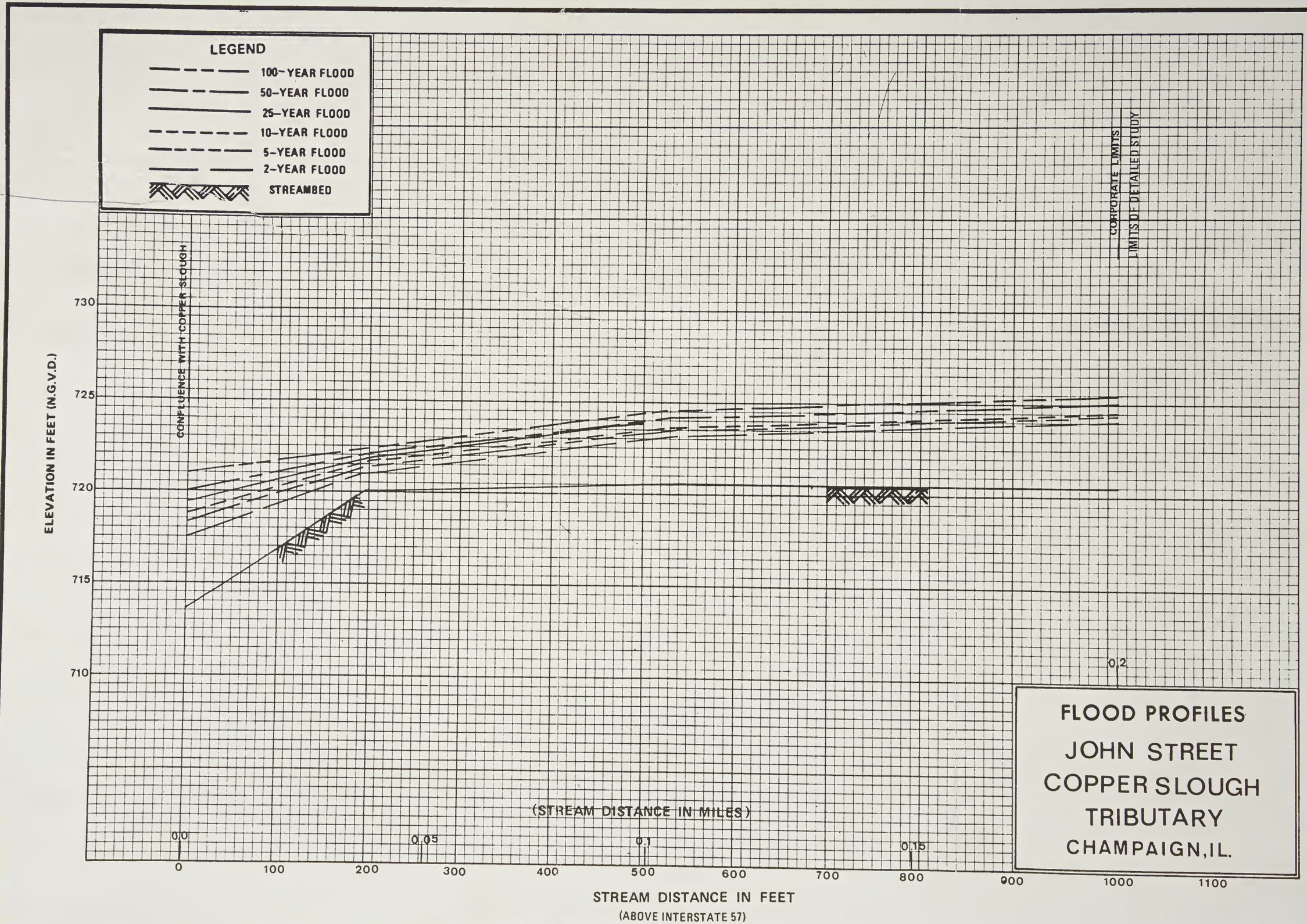
FLOOD PROFILES

JOHN STREET
COPPER SLOUGH
TRIBUTARY

CHAMPAIGN, IL.

1 OF 1

FIGURE 7

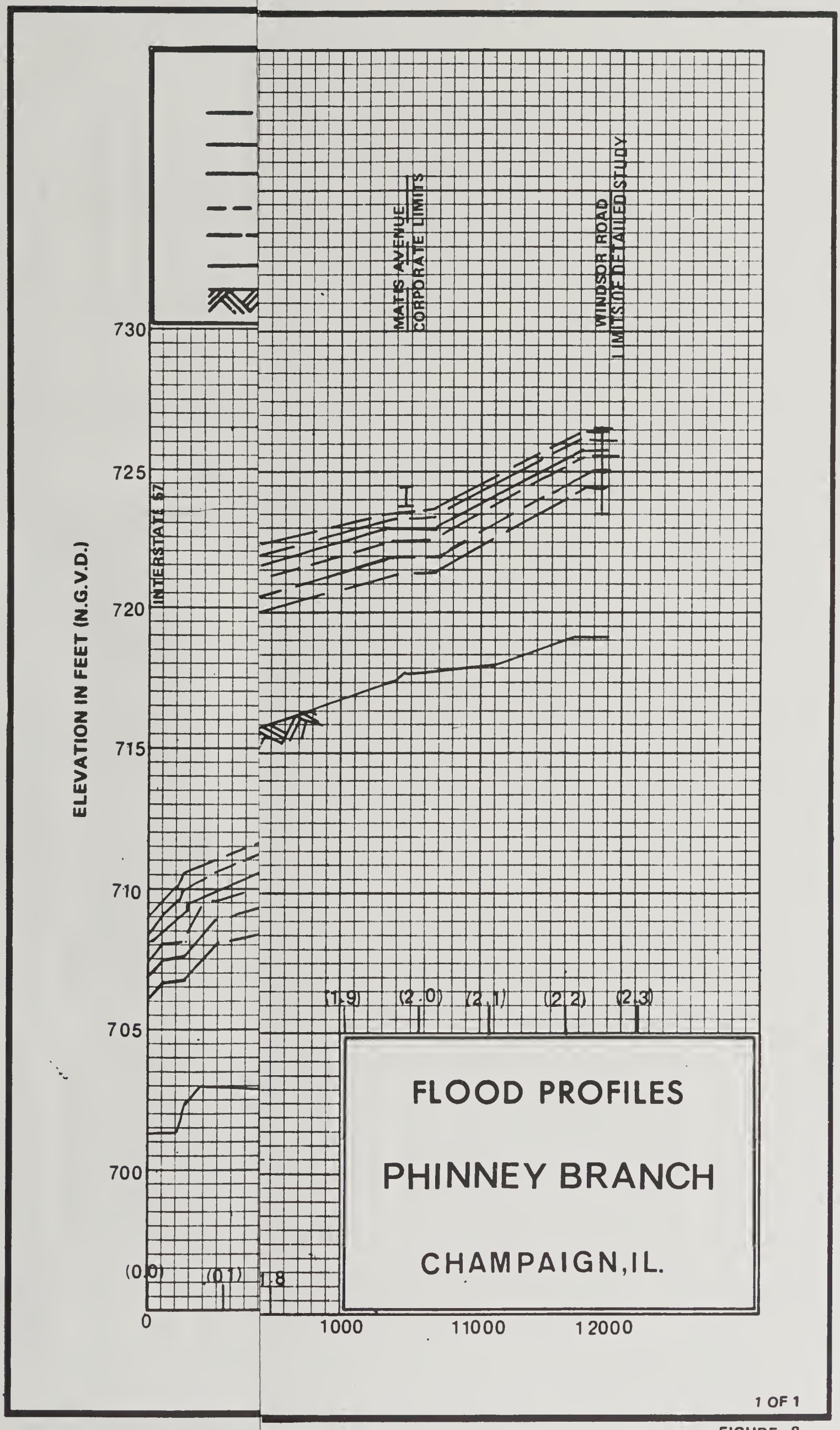


FLOOD PROFILES

JOHN STREET
COPPER SLOUGH
TRIBUTARY
CHAMPAIGN, IL.

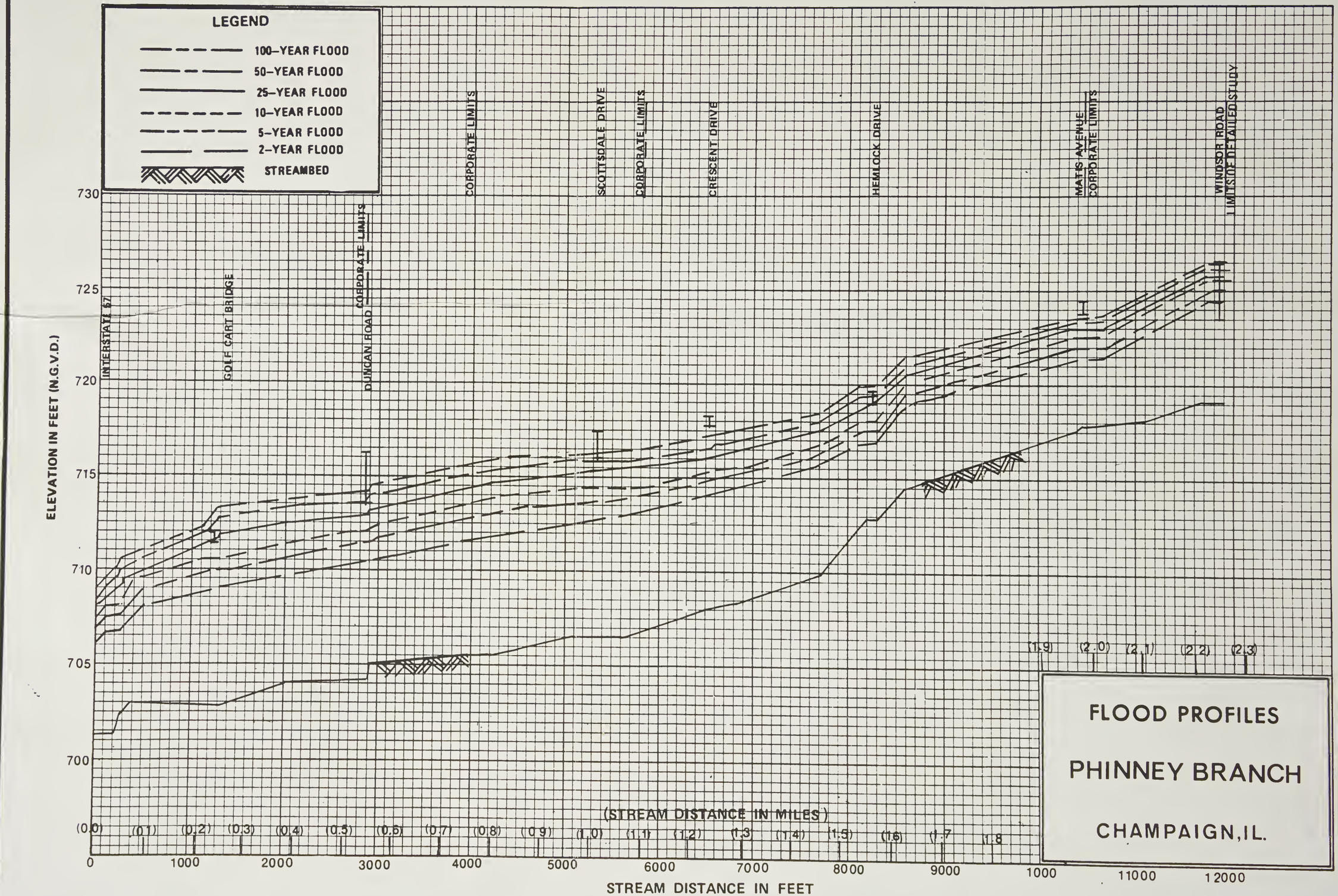
CORPS OF ENGINEERS

U. S. ARMY



1 OF 1

FIGURE 8



1 OF 1

FIGURE 8

KEY TO FLOOD DAMAGE OUTPUTS - SAMPLE

FLOOD DAMAGE EVALUATION SUMMARY

ALBANY

CONTENT EXPENDITURE / MONEY INCOME 0.120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR	LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (0.00)	2 (0.00)	5 (0.00)	10 (0.00)	20 (0.00)	50 (0.00)	100 (0.00)
1	ONE STORY W/O BSMT		38.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
	FIRST FLR ONLY		5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5
6	MULTI-STORY W/ BSMT		37.8	0.0	0.0	0.0	0.0	0.9	4.4	8.1
	FIRST TWO FLRS & BSMT		5.5	0.0	0.0	0.0	0.0	0.6	1.1	2.3
3	MULTI-STORY W/O BSMT		37.7	0.0	0.0	0.0	0.0	0.0	0.4	2.0
	FIRST TWO FLRS		5.5	0.0	0.0	0.0	0.0	0.0	0.1	0.4
11	ONE STORY W/ BSMT		41.3	0.0	0.0	4.6	11.7	20.3	38.3	92.2
	FIRST FLR & BSMT		6.0	0.0	0.0	0.9	2.4	3.4	7.2	9.1
ENTIRE STUDY AREA				0.0	0.0	5.5	14.1	25.3	51.3	97.1
% A/A/D ACCUMULATED										
	INTERIOR			0.0	0.0	28.9	57.0	72.0	91.8	100.0
	EXTERIOR			0.0	0.0	29.9	54.0	72.2	91.4	100.0
	TOTAL			0.0	0.0	28.9	54.5	72.2	91.5	100.0

AVERAGE ANNUAL DAMAGE (000) 4.1 (0.7)
DAMAGES AT PROJECT ELV(000) 97.1 (12.3)
ZERO DAMAGE FLOOD YEAR 3

(1) PRINTOUT TITLE (BY CLUSTER, OR SUMMARY)

(2) PARAMETERS SET TO DERIVE DAMAGES

(3) TABLE TITLE

(4) NUMBER OF HOMES BY TYPE

(5) TYPE OF HOME

(6) FLOOD FREQUENCY INTERVAL (YEARS)

(7) STAGE LEVELS USED IN ANALYSIS
(NOT GIVEN ON SUMMARY TABLES)

(8) AVERAGE STRUCTURE VALUE

(9) AVERAGE CONTENT VALUE

(10) GROSS DAMAGE BY EVENT

(11) AVERAGE ANNUAL DAMAGE STRUCTURE AND CONTENTS

(12) AVERAGE ANNUAL DAMAGE CONTENTS

(13) FIRST YEAR FLOOD DAMAGE OCCURS

(14) PERCENT OF AVERAGE ANNUAL DAMAGE (ACCUMULATED)

FLOOD DAMAGE EVALUATION SUMMARY

0 ENTIRE REACH CHAMPAIGN,IL

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (0.00)	2 (0.00)	5 (0.00)	10 (0.00)	20 (0.00)	50 (0.00)	100 (0.00)
35	MULTI-STORY W/ BSMT	32.1	3.4	5.5	9.9	15.6	19.5	27.5	36.4
	FRST TWO FLRS & BSMT	6.1	2.6	3.7	5.4	7.6	9.3	11.6	14.3
49	MOBILE HOME W/ FNDT	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MOBILE HOME	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	ONE STORY W/ BSMT	24.6	2.1	3.6	6.6	11.3	15.3	21.9	28.0
	FIRST FLR & BSMT	5.4	1.1	1.8	3.2	4.8	5.8	6.8	8.7
7	MULTI-STORY W/O BSMT	26.4	0.0	.6	1.4	2.0	2.5	4.8	6.4
	FIRST TWO FLRS	5.3	0.0	.1	.3	.5	.6	1.1	1.5
39	ONE STORY W/O BSMT	15.6	0.0	0.0	.0	1.2	3.0	7.4	11.4
	FIRST FLR ONLY	4.3	0.0	0.0	.0	.5	1.2	3.1	4.9
	ENTIRE STUDY AREA		9.2	15.4	26.9	43.5	57.1	84.1	111.6
	* A/A/D ACCUMULATED								
	INTERIOR		56.1	71.2	83.9	92.1	95.6	98.4	100.0
	EXTERIOR		42.8	59.0	75.5	87.3	92.4	97.8	100.0
	TOTAL		47.3	63.1	78.3	88.9	93.5	98.0	100.0

AVERAGE ANNUAL DAMAGE (000) 19.5 (6.6)
DAMAGES AT PROJECT ELV(000) 213.4 (53.4)
STD PROJ FLOOD ELEV SPEC 1.00
ZERO DAMAGE FLOOD YEAR 0
PROTECTION LEVEL OVRD YEAR 0

FLOOD DAMAGE EVALUATION SUMMARY

HONEYD 1 2,02 RFPT 2,0200

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2,700
AFFLUENCE FACTOR ADJUSTMENT 1,000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (715,10)	2 (716,00)	5 (717,30)	10 (718,80)	20 (719,27)	50 (720,30)	100 (721,10)
3	MULTI-STORY W/ BSMT	28,3	0,0	0,0	0,0	1,1	1,7	3,2	4,8
	FRST TWO FLRS & BSMT	5,8	0,0	0,0	0,0	,7	,8	1,4	1,7
	ENTIRE STUDY AREA		0,0	0,0	0,0	1,8	2,5	4,6	6,5
	* A/A/D ACCUMULATED								
	INTERIOR		0,0	0,0	0,0	73,6	79,3	96,6	100,0
	EXTERIOR		0,0	0,0	0,0	53,9	71,9	90,1	100,0
	TOTAL		0,0	0,0	0,0	60,3	74,3	92,2	100,0

AGGREGATE VALUE OVRD	0,0	AVERAGE ANNUAL DAMAGE (000)	,3 (,1)
CLUSTER INDEX VALUE	1,000	DAMAGES AT PROJECT ELV(000)	10,1 (2,5)
MAJOR ELEV ADJ	0,00	STD PROJ FLOOD ELEV SPEC	1,00
CLUSTER ELEV ADJ	0,00	ZERO DAMAGE FLOOD YEAR	7
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

BONFYD 2 2.25 RFPT 2.2500

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (718.40)	2 (719.10)	5 (720.00)	10 (720.60)	20 (720.87)	50 (721.40)	100 (722.10)
3	MULTI-STORY W/ BSMT	45.0	0.0	0.0	0.0	0.0	.1	.6	1.3
	FRST TWO FLRS & BSMT	6.9	0.0	0.0	0.0	0.0	.3	.3	.4
3	ONE STORY W/ BSMT	33.3	0.0	0.0	.3	1.2	1.8	3.1	5.4
	FIRST FLR & BSMT	6.1	0.0	0.0	.3	.7	.8	.9	1.5
	ENTIRE STUDY AREA		0.0	0.0	.6	1.9	3.0	5.0	8.6
	* A/A/D ACCUMULATED								
	INTERIOR		0.0	0.0	49.6	78.4	91.5	94.1	100.0
	EXTERIOR		0.0	0.0	19.8	54.2	69.1	87.5	100.0
	TOTAL		0.0	0.0	29.8	62.3	76.6	89.7	100.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	.5 (.2)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	16.3 (3.6)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	3
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

MONEYD 3 2,48 RFPT 2,4800

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2,700
AFFLUENCE FACTOR ADJUSTMENT 1,000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (722,40)	2 (722,80)	5 (723,40)	10 (723,40)	20 (723,80)	50 (724,00)	100 (724,20)
1	MULTI-STORY W/ BSMT	75,0	0,0	0,0	0,0	0,0	,1	,5	1,0
	FRST TWO FLRS & BSMT	9,2	0,0	0,0	0,0	0,0	,5	,5	,5
	ENTIRE STUDY AREA		0,0	0,0	0,0	0,0	,6	1,0	1,5
	* A/A/D ACCUMULATED								
	INTERIOR		0,0	0,0	0,0	0,0	95,8	99,0	100,0
	EXTERIOR		0,0	0,0	0,0	0,0	14,8	79,6	100,0
	TOTAL		0,0	0,0	0,0	0,0	51,8	88,5	100,0

AGGREGATE VALUE OVRD	0,0	AVERAGE ANNUAL DAMAGE (000)	,1 (,0)
CLUSTER INDEX VALUE	1,000	DAMAGES AT PROJECT ELV(000)	3,6 (,7)
MAJOR ELEV ADJ	0,00	STD PROJ FLOOD ELEV SPEC	1,00
CLUSTER ELEV ADJ	0,00	ZERO DAMAGE FLOOD YEAR	18
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

RONEYD 4 2,56 RFPT 2,5600

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2,700
AFFLUENCE FACTOR ADJUSTMENT 1,000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (724.10)	2 (724.40)	5 (724.80)	10 (725.10)	20 (725.17)	50 (725.30)	100 (725.30)
3	MULTI-STORY W/ BSMT	43.3	0.0	.0	1.3	2.5	2.8	3.3	3.3
	FRST TWO FLRS & BSMT	6.8	0.0	.7	1.1	1.1	1.2	1.2	1.2
2	ONE STORY W/ BSMT	30.0	0.0	.2	.7	1.3	1.4	1.7	1.7
	FIRST FLR & BSMT	5.9	0.0	.3	.4	.7	.7	.8	.8
	ENTIRE STUDY AREA		0.0	1.2	3.5	5.6	6.1	7.0	7.0
	+ A/A/D ACCUMULATED								
	INTERIOR		0.0	74.2	92.5	99.4	99.7	100.0	100.0
	EXTERIOR		0.0	12.7	67.9	93.6	96.9	100.0	100.0
	TOTAL		0.0	39.5	78.6	96.1	98.1	100.0	100.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	1.5 (.7)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	12.9 (2.6)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	1
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

Figure 9 6 of 11

FLOOD DAMAGE EVALUATION SUMMARY

RONEYD 5 2,70 RFPT 2,7000

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2,700
AFFLUENCE FACTOR ADJUSTMENT 1,000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (724,60)	2 (725,20)	5 (726,00)	10 (726,70)	20 (727,03)	50 (727,60)	100 (727,80)
2	MULTI-STORY W/ BSMT	42,5	0,0	0,0	0,0	,9	1,7	2,9	3,3
	FRST TWO FLRS & BSMT	6,7	0,0	0,0	0,0	,7	,8	,9	1,0
4	ONE STORY W/ BSMT	30,0	0,0	0,0	,2	1,8	3,2	5,4	6,4
	FIRST FLR & BSMT	6,0	0,0	0,0	,4	,8	1,2	1,3	1,7
1	MULTI-STORY W/O BSMT	45,0	0,0	0,0	0,0	0,0	,1	1,3	1,8
	FIRST TWO FLRS	6,9	0,0	0,0	0,0	0,0	,0	,3	,4
	ENTIRE STUDY AREA		0,0	0,0	,5	4,2	6,9	12,3	14,6
	♦ A/A/D ACCUMULATED								
	INTERIOR		0,0	0,0	25,2	77,2	90,5	97,0	100,0
	EXTERIOR		0,0	0,0	5,3	51,8	73,9	96,4	100,0
	TOTAL		0,0	0,0	11,2	59,3	78,8	96,6	100,0

AGGREGATE VALUE OVRD	0,0	AVERAGE ANNUAL DAMAGE (000)	1,0 (,3)
CLUSTER INDEX VALUE	1,000	DAMAGES AT PROJECT ELV(000)	23,8 (4,5)
MAJOR ELEV ADJ	0,00	STD PROJ FLOOD ELEV SPEC	1,00
CLUSTER ELEV ADJ	0,00	ZERO DAMAGE FLOOD YEAR	4
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

RCINEYD 6 2,88 RFPT 2.8H00

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (727.00)	2 (727.30)	5 (727.70)	10 (728.00)	20 (728.13)	50 (728.40)	100 (728.40)
8	MULTI-STORY W/ BSMT	27.5	2.4	3.5	5.1	6.2	6.8	8.0	8.0
	FRST TWO FLRS & BSMT	5.8	1.4	1.8	2.3	2.8	3.0	3.2	3.2
5	ONE STORY W/ BSMT	26.0	1.2	2.2	3.6	4.6	5.1	6.0	6.0
	FIRST FLR & BSMT	5.7	.7	1.1	1.2	1.3	1.3	1.4	1.4
1	MULTI-STORY W/O BSMT	40.0	0.0	.6	1.4	2.0	2.2	2.6	2.6
	FIRST TWO FLRS	6.6	0.0	.1	.3	.5	.5	.5	.5
1	ONE STORY W/O BSMT	15.0	0.0	0.0	0.0	.0	.1	.4	.4
	FIRST FLR ONLY	4.4	0.0	0.0	0.0	.0	.1	.2	.2
	ENTIRE STUDY AREA		5.7	9.4	13.9	17.4	19.0	22.3	22.3
♦ A/A/D ACCUMULATED									
	INTERIOR		72.7	A8.9	96.1	99.0	99.5	100.0	100.0
	EXTERIOR		54.9	76.7	91.7	97.2	98.6	100.0	100.0
	TOTAL		60.4	A0.4	93.0	97.7	98.9	100.0	100.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	9.4 (2.9)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	38.1 (9.1)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	0
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

FLOOD DAMAGE EVALUATION SUMMARY

HONEYD 7 2.97 RFPT 2.9700

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (727.10)	2 (727.50)	5 (728.00)	10 (728.30)	20 (728.57)	50 (728.80)	100 (728.80)
1	ONE STORY W/ BSMT	20.0	.9	1.2	1.6	1.8	1.9	2.1	2.1
	FIRST FLR & BSMT	5.4	.4	.4	.4	.5	.6	.7	.7
9	ONE STORY W/O BSMT	16.7	0.0	0.0	.0	.9	2.2	4.4	4.4
	FIRST FLR ONLY	4.6	0.0	0.0	.0	.4	.9	1.8	1.8
	ENTIRE STUDY AREA		1.3	1.6	2.0	3.7	5.7	9.0	9.0
	* A/A/D ACCUMULATED								
	INTERIOR		71.0	73.0	74.3	86.4	93.5	100.0	100.0
	EXTERIOR		60.1	71.0	78.1	88.1	94.1	100.0	100.0
	TOTAL		63.0	71.6	77.1	87.6	94.0	100.0	100.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	2.0 (.5)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	21.9 (6.4)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	0
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

FLOOD DAMAGE EVALUATION SUMMARY

RONEYD 9 3,66 RFPT 3,6600

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2,700
AFFLUENCE FACTOR ADJUSTMENT 1,000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (732,60)	2 (732,80)	5 (733,10)	10 (733,50)	20 (733,83)	50 (734,00)	100 (734,70)
8	MULTI-STORY W/ BSMT	24,4	,5	,8	1,2	1,6	1,9	2,0	5,3
	FRST TWO FLRS & BSMT	5,7	,6	,6	,7	,8	,9	,9	2,7
2	ONE STORY W/ BSMT	20,0	0,0	0,0	0,0	,0	,3	,4	1,5
	FIRST FLR & BSMT	5,4	0,0	0,0	0,0	,3	,3	,3	,7
7	ONE STORY W/O BSMT	22,9	0,0	0,0	0,0	0,0	0,0	0,0	,5
	FIRST FLR ONLY	5,3	0,0	0,0	0,0	0,0	0,0	0,0	,2
	ENTIRE STUDY AREA		1,1	1,4	1,8	2,6	3,3	3,7	11,0
♦ A/A/D ACCUMULATED									
	INTERIOR	83,7	85,2	86,8	92,2	93,6	94,0	100,0	
	EXTERIOR	55,5	70,2	81,2	87,4	91,5	92,9	100,0	
	TOTAL	67,8	76,8	83,6	89,5	92,4	93,4	100,0	

AGGRFGATE VALUE OVRD	0,0	AVERAGE ANNUAL DAMAGE (000)	1,6 (,7)
CLUSTER INDEX VALUE	1,000	DAMAGES AT PROJECT ELV(000)	24,2 (6,7)
MAJOR ELEV ADJ	0,00	STD PROJ FLOOD ELEV SPEC	1,00
CLUSTER ELEV ADJ	0,00	ZERO DAMAGE FLOOD YEAR	0
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

RONEYD 10 3.82 RFPT 3.8200

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (733.70)	2 (734.00)	5 (734.40)	10 (734.80)	20 (735.20)	50 (735.70)	100 (736.00)
3	MULTI-STORY W/ BSMT	26.7	.2	.5	1.2	1.9	2.5	3.4	4.0
	FRST TWO FLRS & BSMT	5.7	.3	.3	.7	.8	1.2	1.3	1.4
1	ONE STORY W/ BSMT	20.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
	FIRST FLR & BSMT	5.4	0.0	0.0	0.0	0.0	0.0	0.0	.3
2	MULTI-STORY W/O BSMT	30.0	0.0	0.0	0.0	0.0	0.0	.3	.9
	FIRST TWO FLRS	5.9	0.0	0.0	0.0	0.0	0.0	.1	.2
4	ONE STORY W/O BSMT	13.8	0.0	0.0	0.0	.2	.6	1.5	2.1
	FIRST FLR ONLY	4.0	0.0	0.0	0.0	.1	.3	.7	1.0
	ENTIRE STUDY AREA		.5	.9	1.9	2.9	4.6	7.3	9.8
♦ A/A/D ACCUMULATED									
	INTERIOR	60.6	62.4	82.8	87.0	94.1	98.1	100.0	
	EXTERIOR	25.6	44.9	67.8	80.7	89.2	97.2	100.0	
	TOTAL	39.3	51.7	73.7	83.1	91.1	97.5	100.0	

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	1.3 (.5)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	20.0 (5.3)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	0
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (741.40)	2 (741.90)	5 (742.60)	10 (743.00)	20 (743.20)	50 (743.60)	100 (743.80)
47	MOBILE HOME W/ FNDT	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MOBILE HOME	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	ENTIRE STUDY AREA		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	+ A/A/D ACCUMULATED								
	INTERIOR		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	EXTERIOR		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL		0.0	0.0	0.0	0.0	0.0	0.0	0.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	0.0 (0.0)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	0.0 (0.0)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	102
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

3RD ST BYD 0.12 RFPT 0.1200

CONTENT EXPENDITURE / MONEY INCOME .120
CONTENT STOCK EQUIVALENT 2.700
AFFLUENCE FACTOR ADJUSTMENT 1.000

FLOOD SPECIFIC DAMAGES BY HOME TYPE AND FLOOD YEAR
(DAMAGES IN THOUSANDS OF DOLLARS)

NUMBER OF HOMES	HOME DESCRIPTION EXTERIOR LOCATION OF CONTENTS	ESTIMATED VALUE (000)	FLOOD YEAR AND STAGE 1 (718.80)	2 (719.50)	5 (720.40)	10 (721.20)	20 (721.60)	50 (722.50)	100 (723.10)
1	MULTI-STORY W/ BSMT	65.0	0.0	0.0	0.0	0.0	0.0	1.0	2.1
	FRST TWO FLRS & BSMT	8.3	0.0	0.0	0.0	0.0	0.0	.5	.5
	ENTIRE STUDY AREA		0.0	0.0	0.0	0.0	0.0	1.4	2.6
	* A/A/D ACCUMULATED								
	INTERIOR		0.0	0.0	0.0	0.0	0.0	94.1	100.0
	EXTERIOR		0.0	0.0	0.0	0.0	0.0	60.7	100.0
	TOTAL		0.0	0.0	0.0	0.0	0.0	69.7	100.0

AGGREGATE VALUE OVRD	0.0	AVERAGE ANNUAL DAMAGE (000)	.1 (.0)
CLUSTER INDEX VALUE	1.000	DAMAGES AT PROJECT ELV(000)	4.1 (.8)
MAJOR ELEV ADJ	0.00	STD PROJ FLOOD ELEV SPEC	1.00
CLUSTER ELEV ADJ	0.00	ZERO DAMAGE FLOOD YEAR	32
NON-INTEGER FREQ	0	PROTECTION LEVEL OVRD YEAR	0

FIGURE 10

IS IN THE POUCH

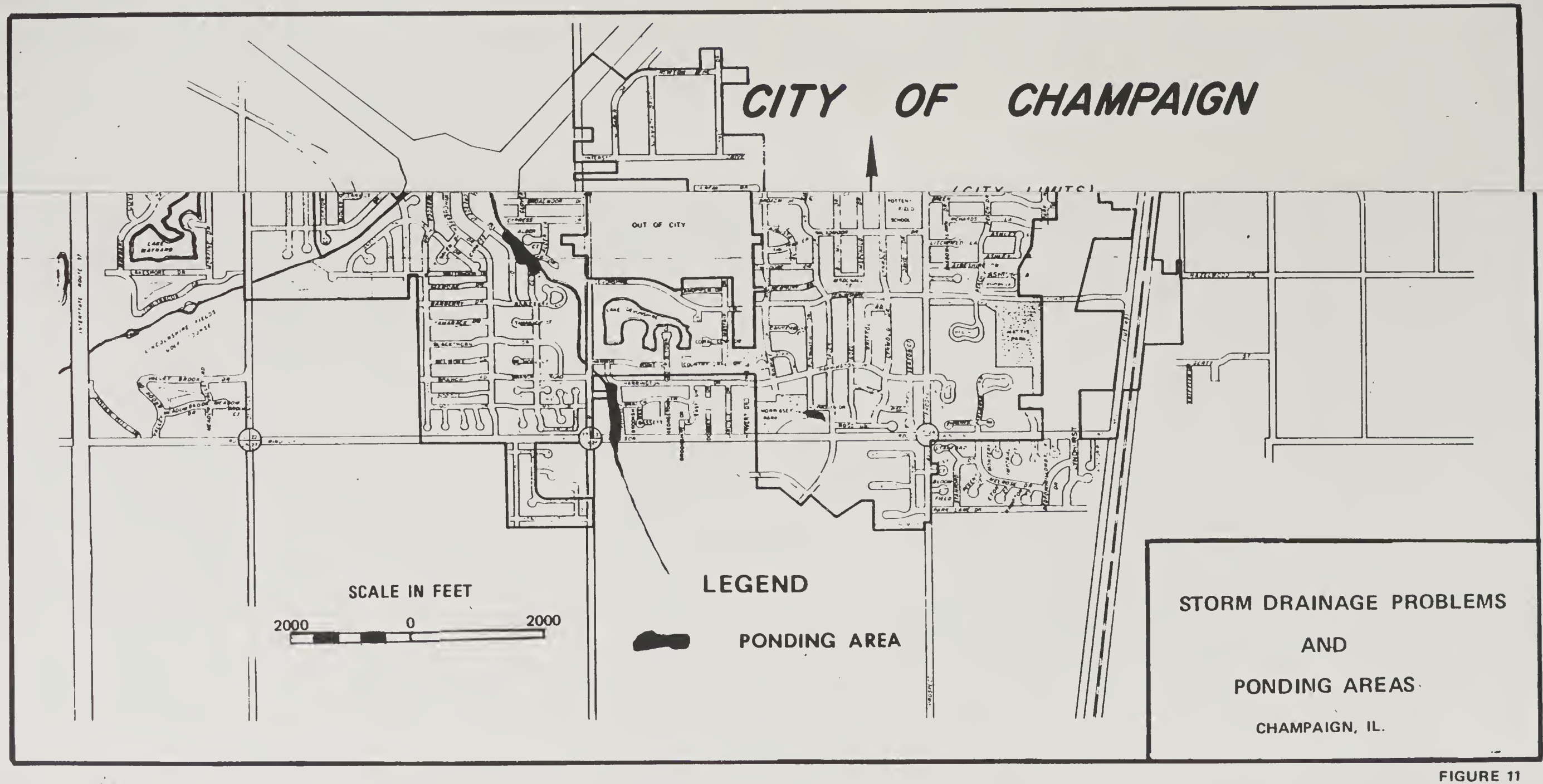

CITY OF CHAMPAIGN
CITY LIMITS
OUT OF CITY
LAKE HAYWARD
SCALE IN FEET
2000
0
2000
LEGEND
PONDING AREA
STORM DRAINAGE PROBLEMS
AND
PONDING AREAS
CHAMPAIGN, IL.

FIGURE 11

CITY OF CHAMPAIGN

(CITY LIMITS)
·1980·

N

SCALE IN FEET
2000 0 2000

LEGEND
PONDING AREA

STORM DRAINAGE PROBLEMS
AND
PONDING AREAS·
CHAMPAIGN, IL.

FIGURE 11